

Biosocial and epigenetic relativity of human nature: Relative to political economy, technology, and culture

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“It is a question of the Third World starting a new history of Man, a history which will have regard to the sometimes prodigious theses which Europe has put forward, but which will also not forget Europe’s crimes, of which the most horrible was committed in the heart of man, and consisted of the pathological tearing apart of his functions and the crumbling away of his unity.”

Frantz Fanon

The Wretched of the Earth, (Fanon, 1963, p. 315).

“We all live under the constant threat of our own annihilation. Only by the most outrageous violation of ourselves have we achieved our capacity to live in relative adjustment to a civilization apparently driven to its own destruction.”

R. D. Laing

The Politics of Experience/The Bird of Paradise (R.D. Laing, 1967)

Abstract

This and an earlier paper (Rahman 1980) have ventured into the *terra incognita* and focused on the effects of social environment on the epigenetic and biosocial regulation of human nature. Undoubtedly, there are also the effects of natural and physical environment on such regulation, which are also important to investigate. Various research studies with other forms of life, cited in the Review of Literature in these papers, reveal how changes in the internal and external physical environmental factors cause corresponding epigenetic and gene regulatory changes in various organisms.

A dialectical theory is developed in these papers on the dialectical and relative nature and regulation of human nature, in relation to and in interactions with the politico-economic, mass psychological, and cultural systems and processes of the social environment. The main focus is on the totally un-researched and unknown areas and effects of such regulation on the epigenetic and gene regulatory dimensions. Some recent research findings which clearly demonstrate that domestication forces and pressures and directional selection (analogous to changes in the politico-economic and cultural forces and pressures in humans) bring about tangible and heritable gene regulatory changes in some animals are reviewed and correlated with

the hypotheses and discoveries of our theoretical research. It is concluded that the imperialist capitalism-science and technology-culture complex, especially in its extremist forms and advanced stages, like those of the US, gives rise to extreme imbalances in the differential socio-genetic regulation of human nature.

Destruction of the ecology of nature is dialectically related to the destruction of the ecology of human nature, both being the historical products of the co-evolution of capitalism and technology.

A note on the background of this paper

The first interdisciplinary and in-depth paper on the biosocial and epigenetic effects of technocracy, capitalist-technocratic culture, and capitalism on human nature was published 36 years ago (Rahman 1980). That paper contained a new and original macro-level theory on these complex matters. The contents of that paper were further developed, refined and expanded in another article in 1982, which was not published, but was presented at an international conference in Spain (Rahman 1982). While the emphasis of the first paper was on technocracy, in the second paper, it was on capitalism and imperialism, which integrated the politico-economic systems, technocracy, and cultures-and their biosocial effects on the regulation of human nature-much more systematically. This is the latter paper, which had also updated the review of literature until 1982. The article was typewritten and has been hibernating for 34 years. It was scanned and transferred to the Microsoft Word, in order to be able to post it. These papers were, and continue to be, the only articles that contain such original and new analyses of these complex interrelated phenomena and a new and original theory, underlying them. These are in need of further improvement, refinement, and elaboration, in addition to incorporation of selected parts of the enormous research information and discoveries that have been published since 1982, which give further support to their contents and theory.

Due to very unique and particular background and contents of this paper, the organization of its material is also rather unique and atypical

Problems of human nature, dehumanization, inhumanization, alienation, and reification have been identified and discussed, in various terminologies, by religious figures, philosophers, psychologists, reformers, and revolutionaries, throughout the known human history, since ancient times. There are innumerable documented references in this regard, which are not being cited in this writing, because of considerations of space. Various religions, like Zoroasterism, Judaism, Hinduism, Buddhism, Christianity, and Islam etc., as well as secular politico-economic philosophies, arose in different parts of the world at various historical periods to address these problems and implement their solutions, which generally have been metaphysical and idealistic, and

have, by and large, failed in practice, because of their corruptions and cooptions by the powers controlling the various class-divided socio-economic formations in which they originated and evolved.

In relatively modern times, the actual powers and influences of religions in regulating human nature, behavior, and practices have been greatly reduced and replaced by those of the secular political economies and their various institutions. The two main contending political economies and philosophies in this regard have been, and continue to be, those of capitalism and communism, which create vast domestication enclosures and systems and institutions, corresponding to their nature and relations of production. Among other things, these political economies regulate human nature and its external and internal ecologies, culturally, mass psychologically, and biosocially. Epigenetic and gene regulatory processes are the most important part of the biosocial regulation. Various types of mass epigenetic eugenics have been automatically going on for thousands of years in different class-divided societies, without being recognized or understood as such. Additionally, as a result of human selective forces replacing the natural selection, other types of mass eugenic changes have also taken place. All this has happened, and continues to happen, as a result of the dialectically related and interacting objective and subjective operations of the politico-economic systems. Mass objective processes and contents flow out of the systems, get disseminated on social levels into the society, mostly on the level of mass unconscious, which then determines and regulates the contents of mass consciousness and mass psychology. Both mass unconscious and mass consciousness are parts of the mass subjectivity, which, as mentioned above, is related to and interacts dialectically with the objectivity flowing out of the systems. The most differential, efficient, massive, and all-pervasive of these operations and processes have occurred under capitalism, which have further intensified in the Advanced Capitalist-Imperialist Technological Societies (ACITS). Except for the two papers cited in this article (Rahman 1980, 1982), there has been no other empirical or theoretical research or information in these vast and most important and complex interdisciplinary areas.

Anthropology has remained overwhelmingly dominated by the academic culture, methodology, forms, and contents created in the ACITS of the West, which anthropologists in the so-called developing countries also imitate and reproduce. Anthropologists of ACITS have flooded the Third World countries and produced enormous quantities of publications on that basis. Critical and comprehensive studies of ACITS by the Third World anthropologists are almost non-existent. Even though, the author of this study is not a typical academic anthropologist, he has interdisciplinary background in many areas of social and biological sciences that he has used to produce this study, which self-evidently includes anthropology, among various other areas, regardless of whether the conventional and academic anthropologists consider it as such or not. Moreover, it analyzes the contemporary human

and social reality by creative and dialectical combination and association of Marxist and Third World perspectives with the advanced knowledge and information in the interdisciplinary areas of social and biological sciences, venturing into the *terra incognita*. It is highly unlikely that there are any adequately qualified referees to make any unbiased, informed, rational, or credible judgments on this study. It is mostly up to the editors to decide what to do in case of such a study.

I have discussed the two main categories of genes for the various human faculties in these articles, which need to be refined and elaborated further. The following passages, from two other more recently posted papers, are relevant in this regard:

“Both these papers contained a new and original macro-level interdisciplinary theory on the biosocial regulation of human nature by the combined and intertwined social forces of advanced capitalism, technocracy, and culture, and showed the historical causal connections between these forces and the plague of one-sided advanced capitalist-technocratic civilization, which has been devastating both the ecology of nature and the inner ecology of human nature, the Human Soul-source of the spiritual-emotional parts-being its greatest casualty. Human Reason also underwent extreme reductionisms and is now reduced to capitalist-technological rationality, under the above civilization. This is indeed a most sinister development, as it distorts, perverts, and deforms both the Human Soul and the Human Reason.

In the Advanced Capitalist-Imperialist Technocratic Civilization, the Human Reason is progressively transformed into Capitalist-Technological Rationality, among scientists, technicians, various types of capitalists, politico-economic leaders, and overwhelming majority of the populations. It becomes the dominant faculty in the mass mental apparatus, on the expense of various other human faculties, especially those that are connected with and are expressions of the Human Soul. Fragmented and abstracted from the Human Soul, and compartmentalized, the Capitalist-Technological Rationality increasingly serves and empowers capitalist-imperialist injustice, inequality, exploitation, aggression, domination, brutality, selfishness, big and small lies, hypocrisy, etc.,-in a word, Evil-both on the national and international levels. On the international level, this is frequently manifested in brutal, atrocious, and unjust imperialist wars and conflicts. The Advanced Capitalist-Technological Rationality becomes increasingly transformed into Sinister Insanity, which is also exported to rest of world. Many of these phenomena and processes are occurring on the mass psychological, cultural, and epigenetic levels.”

“Capitalism, especially the advanced capitalism, in the form of imperialism, is the greatest eroder, distorter, perverter, and destroyer of Human Soul, the seat of all the higher human qualities and values, which, in mentally and

spiritually healthy, unalienated, and unreified humans, integrates and regulates all the diverse faculties, drives, needs, and actions, including those of the Reason and Intellect. Reduction of Reason and Intellect to Capitalist Technological Rationality (CTR) and tailoring and submission of Soul to its requirements-as has been done in the Advanced Capitalist-Imperialist Technocratic Civilization (ACITC)-perverts, disrupts, and destroys the very foundation of the inner ecology of human nature. This is the subjective basis of all the objective evils and injustices, with which the ACITC has saturated and polluted this planet, including the mass psychology and human nature of overwhelming majority of its own populations, as well as much of the rest of mankind. Not surprisingly, the most extreme forms of these phenomena are to be found in the current leader of ACITC, the United States of America, from where these radiate to every corner of the planet. Nothing is left untouched or alone.”

“Surely, the problems of conditioning and tailoring of human nature also existed in other class-divided systems and societies. However, the particular type of tailoring being described here is unique to the ACITC, which is also the most efficient and most massive, as it is being automatically regulated and implemented by the most powerful, combined, united, and inextricably intertwined politico-economic, social, cultural, mass psychological, and epigenetic forces of capitalism and technocracy.”

“All the immense material powers-and systems of class-based national and international relations-of ACITC were achieved with the applications of CTR, resulting in the most diabolical association of capitalism, technological rationality, and elements, components, and forces of nature on this planet. These powers were contained with the emergence and development of the Communist Civilization (CC) and its Socialist Technological Rationality (STR) and the development of various powers and products-and systems of national and international relations that were striving to create classless societies-with its applications. CC and STR had the potential to dialectically preserve and further develop the integrity of the inner ecology of human nature and create a radically new human civilization. However, in actual practice, due to existential dangers, constant attacks, threats, conspiracies, and life and death struggle with the ACITC and CTR, this potential could only be partially realized. The extreme hostility and dangers of highly developed technocratic militarism of ACITC did not allow this potential to develop and manifest itself, as it would have in the absence of these. The CC had to devote large amounts of its resources on countering such mortal dangers.”

“The greatest setback and blow to the development of a just, good, and humane civilization occurred with the betrayal and destruction of CC and STR in the USSR, Eastern Europe, and China, where capitalism and CTR have been restored. They are now part of ACITC, even though Russia and China have been increasingly forced into the position of opposition and competing

blocks within the ACITC, by the US and EU. The current international situation is much more dangerous than that of the cold war, as it is characterized by the inter-capitalist and inter-imperialist struggle and competition for resources, markets, exports, spheres of influence and dominance, everywhere on the planet. The Third World War, in the face of US and NATO aggressions in Afghanistan, Iraq, Yugoslavia, and Libya, was only prevented by the compromise, restraint, and retreat of Russia and China. However, Russia has now been pushed into a corner in the new Ukrainian conflicts on its border, instigated by its rivals in the US and EU. After the overthrow of the elected President, fascists, racists, and extremists-who want to turn Ukraine into a base of NATO against Russia-have gained control of the government machinery in Ukraine. Russia was finally forced to draw a line there and seems to be willing to confront the NATO forces, if necessary. As far as the Chinese are concerned, their role so far has been ambiguous, as they have been benefiting enormously in their trade and investment relations with the West and rest of the world, and have been very reluctant to rock the boat. Capitalist westernization of Chinese political economy, society, education system, and culture is in full swing, in spite of the hypocritical admonitions of its political leaders in this regard. Hundreds of thousands of Chinese students have been sent to the American and European universities. When they return, most will bring back the western capitalist mass psychology, culture, and behavior. It remains to be seen how the Chinese will act, if the push comes to shove. They are also being pushed into a corner and may finally draw a line, like Russia did.”

“Many of these phenomena and processes are occurring on the mass psychological, cultural, and epigenetic levels.” (Rahman 2015a).

“As far as the destructive effects of capitalism and imperialism on the ecology of human nature are concerned-as described in various parts of this article above-these are differential and multidimensional, involving mass psychological, cultural, epigenetic, and gene regulatory dimensions, which are ultimately based upon and regulated by the political economy. Numerous Marxists have envisioned the creation of a New Man under socialism and communism. This author also shares that vision. However, it will not be that easy. The epigenetic and gene regulatory effects give certain stability and inter-generational continuity to the various traits of human nature, as conditioned and produced by the political economy of capitalism and imperialism, and before these, by the political economies of other class-divided systems. The genetic potentials for the reactivation of the good traits, which have been inactivated or regulated at relatively low levels, may still be there, and under socialism and communism, these may be reactivated or activated at higher levels. Similarly, the potentials for the inactivation or regulation to low levels of some of the bad traits of human nature is definitely there during the development of classless societies, under socialism and communism. However, it will take considerable time-on the intergenerational

scale-to reverse the processes of centuries and millenniums of dehumanization and inhumanization of capitalism, imperialism, and other class-divided systems. Marxists have generally assumed the effects of political economies to be mass psychological and cultural, without being aware of their biosocial, epigenetic, and gene regulatory dimensions, which lead to unrealistic expectations and optimism. The relevant contents of this article put those expectations and optimism in their proper and realistic perspective.” (Rahman 1980, 2015a).

“Re: Human Soul: The reality of Human Soul has been recognized throughout the known human history, religiously, intuitively, rationally, and philosophically. Whether one considers its nature to be non-biological, as in all the major religions, or biological, it is the seat of the highest human faculties and qualities. Author’s own view is that the Human Soul has a biological dimension, which, like all the other human traits and faculties, is influenced by the natural and social environments, in its development and expression. Erosive effects of capitalism and imperialism on Human Soul have been discussed from that perspective. However, these can also be interpreted in religious terms.” (Rahman 2015a)

End of passages from the more recent papers.

It should be self-evident that the all-pervasive, macro-level, and powerful social, cultural, mass psychological and epigenetic forces of such foundations of society, like the political economy, technology, and technocracy, have macro-level and powerful effects on the differential conditioning and expressions of human nature. However, the fields of political economy, anthropology, psychology, sociology, biology, and genetics are completely blank in this regard. There is no research, information, or knowledge in these areas. Marx had made some brief and scattered observations on the necessity of situating and understanding human nature within the contexts of particular political economies and histories, which, even though, contained profound insights, were entirely inadequate for any in-depth or comprehensive knowledge or understanding of this matter. His focus was elsewhere. One of his statements on human nature contains such an insight: **“But the essence of man is no abstraction inherent in each single individual. In reality, it is the ensemble of the social relations.”** (Marx 1845). The German-American Marxism-oriented psychologist, Erich Fromm (1970, 1965), had tried to break some new ground in integrating political economy and psychology. However, his efforts got nowhere and were ignored by the mainstream psychological establishment.

It is also obvious that widespread dehumanizations and inhumanizations, mental illness, numerous behavioral and drug problems, crime etc. originate in these foundations. And yet, in the vast literature of studies of these problems, the problems remain disconnected from their real causes, and

hence, no effective solutions can be found or implemented. Only the symptoms are treated, mostly ineffectively. In psychology and psychiatry, every effort is made to fit the patients, whose disturbances may have been caused by the institutions, norms, and processes of a very sick society, back into them. Any successes achieved in those treatments are considered the restorations of mental health, and the psychologists and psychiatrists walk away with huge fees, laughing all the way to their banks, regardless of whether they achieved even that kind of “success” or not.

Humans have drastically interfered with all the natural processes of nature, including those of the natural selection. In capitalist and imperialist societies, natural selection in the human populations has been largely replaced by the human capitalist and imperialist selection, selecting for the traits of selfishness; inequality; aggressiveness; competitiveness; ruthless exploitation of one’s fellow human beings, other forms of life, and nature; greed; will to power; injustice; calculative thinking; capitalist technological rationality etc., and selecting against the traits of altruism; genuine peacefulness (which is totally different from the capitulation to powers-that-be, in the service of money, masquerading as “peace” in these societies); genuine cooperativeness (which is totally different from the capitulation to powers-that-be, in the service of money, masquerading as “cooperativeness” in these societies); will to compassion; holistic and meditative thinking; feelings of justice and love for one’s fellow human beings, other forms of life, nature, and ecology of nature; genuine holistic reason and rationality; etc., in a word, selecting against the authentic human soul, which, in this author’s view, has a biological dimension, among others. These processes are taking place on the politico-economic, mass psychological, cultural, epigenetic, and biological levels, which interact with each other and are all inextricably intertwined in reality, even though humans have fragmented them into separate areas of research, information, and knowledge.

At the time these papers were written, epigenetics was in its infancy and extremist bias against Lamarck, the theory of inheritance of acquired characteristics, and any critical, comprehensive, and dialectical theories or writings on the interconnected areas of capitalism, imperialism, technocracy, culture, and biosocial regulation of human nature, was so widespread in the western scientific, academic, and other establishments that it was next to impossible to publish such papers. When Rahman submitted the first paper to the refereed *Journal of Social and Biological Structures* in 1980, some of the referees tried to block its publication by submitting false comments that some of the authors, whose gene regulatory theory he had cited in support of his own theory, had repudiated their own theory. That was a blatant lie, as those authors, instead of repudiating their theory, had substantiated it with more research evidence. The editors of that journal had enough integrity to forward their lies to Rahman and ask for his response. He sent them the evidence of their lies and the article got published. Obviously, the referees were so

biased against the gene regulatory theory and his own socialist analyses that they stooped to that level to prevent the publication. They thought that the editors will just take their words for it (which most editors do), but in this case, the editors asked for his response.

The explosion of research discoveries of the last twenty years in epigenetics and gene regulation has now led in the opposite direction. Everyone is now jumping on the bandwagon of epigenetics and it is being applied in all the diverse areas of biological, medical, and social sciences, the various phenomena of which are being reinterpreted in the light of these new discoveries. The associated and inevitable rat races have also started in these areas and have now been going on for quite some time. Some publishers and authors have taken their greed to a new level, charging \$200 and \$300 for the books, and more than \$30 each for the single chapters for downloading! Even though, like everything else under capitalism, knowledge and information have been turned into commodities for centuries, such new levels of greed are unprecedented. There are rat races in almost every area of life in the Advanced Capitalist-Imperialist Technocratic Society (ACITS) of the US. These have gotten much more vicious recently. Those who are not ratized either refuse to join the rat races or are excluded by the pet super-rats of the powers-that-be of the system, who organize and control these rat races. In all the areas of so-called social sciences, like political science, economics, sociology, anthropology, and philosophy, etc., such pet super-rats-most of them extremely stultified by positivism, subservience to capitalism and imperialism, and selective empiricism, and exploding with asinine arrogance-are controlling almost all the academic journals and other publications. That is the main reason for my extreme reluctance to submit any of my writings to the academic journals in the US. Colleges and universities have increasingly become part of the Military-Industrial-Media-Academic-Complex (MIMAC) and what they are turning out is a reflection of that. Students are forced to pay the highest costs of education in the world at these establishments, which train, brainwash, and disinform them to fit into the innumerable jaws of the Advanced Capitalist-Imperialist Technocratic Moloch (ACITM), which devours them insatiably to maintain and enhance its diabolical powers.

The new discoveries prove that the French evolutionary geneticist Jean-Baptiste Pierre Antoine de Monet, Chevalier de Lamarck (1 August 1744 – 18 December 1829) was correct in his theory of the inheritance of the acquired characteristics and that various social and physical environmental factors can and do bring about changes in the gene regulation and expression, which can then be inherited and passed on to the progeny. His theory, which was produced long before that of Darwin, was subjected to extremist discrimination, suppression, negligence, and ridicule for more than 200 years-in favor of the exclusivity of Darwinian theory of evolution-, by the scientific and other establishments, in the Western Capitalist Civilization, which inflicted

great damages to the development of extremely important research information and knowledge in that area, during all that time. Founders of Marxism-Leninism had used the Darwin's evolutionary theory in support of their theories of historical and dialectical materialism, as it scientifically explained the origin of new and different species from the old, just like the new social systems originated from the old ones. On the other hand, more importantly, the capitalists used its categories of competition, natural selection, and survival of the fittest to explain and justify similar features in their own capitalist system. They resisted and excluded any theories or research that would indicate the role of environmental factors in modifications of traits, their inheritance, and in the evolutionary changes. Only recently, the research discoveries in epigenetics have exploded to such levels that Lamarck's theory can no longer be ignored or denied.

In spite of such paradigmatic changes, the extremist bias against their application in the interrelated areas of political economy, technocracy, culture, and biosocial regulation of human nature continues unabated. Such irrational biases and prejudices are deeply rooted, both in the mass consciousness and the mass unconscious. These originate in complex politico-economic, mass media, cultural, educational, social, and other institutions, forces, and processes-involved in the creation and sustenance of mass psychology and culture-the discussion of which is beyond the scope of this paper. The bias and prejudice against the theory of inheritance of acquired characteristics and Lamarck lasted more than 200 years, and it is still continuing in modified and newer forms, in spite of all the recent discoveries that prove its validity. There was enormous and unrelenting propaganda against Trofim Lysenko, his experiments and hypotheses, in the West, which continues unabated. However, as is self-evident now, he was correct in the premises of his hypotheses and experiments, that is, the theory of the inheritance of acquired characteristics. Even the validity of some of his experiments and their conclusions is now being demonstrated. He was also blamed for causing great damages to the productivity of agriculture in Russia. However, that also was false, as the agricultural productivity in Russia had increased during those times. The scientific community in the West has been a more than willing participant in the western capitalist-imperialist propaganda machine for such a prolonged period of time, unrelentingly condemning Lysenko, Ivan Vladimirovich Michurin, and other Soviet and other scientists as being nothing but corrupters of science and stooges of their socialist politico-economic system and leaders. As has turned out, the real truth is that, until recently, the scientific community in the West has caused great damages to the development of knowledge in the crucially important area of epigenetics-and all the other interrelated areas of knowledge and practice-because of its scientific conservatism, which, among other factors, is based upon capitalist politico-economic conservatism, which itself is based upon its economic self-interests, as scientists and technician are rewarded very well by the system for being its most important intellectual pillars and providing it with all the high

technology powers and foundations. According to the data of the Organization for Economic Cooperation and Development (based in Paris), 63 percent of the research and development activity of a total of 700,000 scientists, engineers and technicians working in the U.S. during 1967 was on behalf of the military (Melman 1970, p. 187). This percentage, as well as huge expenditures on military research and development, have increased since then. In terms of income and benefits, this section of the scientific establishment belongs to its upper class and its economic interests are tied in with those of capitalism, imperialism, militarism, and wars, for which it has provided all the essential material and technical foundations, weapons, means that are used for the development and maintenance of international relations of imperialism, domination, and exploitation, as well as of domestic capitalist relations of production and class divisions, domination, and repression. Therefore, it is the most conservative and right-wing of all the other various sections of the scientific establishment. This section has also provided the basis on which the global arms race and trade have constantly flourished and have reached truly sinister dimensions. This section constitutes the real intellectual-technical basis of all the merchants and merchandise of death, all the weapons of mass destruction, and all the high technology wars, in which countless millions have been slaughtered, injured, and economically destroyed in numerous ways. The worst is yet to come. The Third World War will certainly annihilate the whole human species, as well as most other forms of life.

Global warming; ozone layer depletion; and pollution of air, water, soil, and food are some of the other great accomplishments of the “enlightened” technological humans, mass produced in the ACITS. Some of these disastrous changes, especially the climate change and ozone layer depletion, are already irreversible, in spite of the sinister lullabies, lies, and pretensions of the controllers of the political, economic, and industrial establishments. Overwhelming majorities of the populations of ACITS, as well as their Third World clients, are also complacent in this greatest mass suicidal frenzy towards the Great Abyss.

The destruction of Planet and its biosphere is beyond the abilities of humans, no matter what weapons and pollutants they create. The Planet and its biosphere will recover from all the damages inflicted upon them by this most destructive and self-destructive species of all, which has temporarily jumped onto the center of the stage of evolution. Planet’s life span consists of billions of years, while human species evolved only around 6 millions years ago, current forms of humans around 200, 000 years ago, and civilization around 6,000 years ago. The “enlightened” and modern humans have sprung up only a few centuries ago, and have devastated the planet’s ecology and the ecology of their own human nature during that relatively very short period of time, and especially during the previous 100 years. Human generations’ life span, on average, is probably less than 70 years. Planet has all the time it

needs to recover and rejuvenate. Many other species of life also are much more capable to survive the aftermaths of the Third World War or climate change than the humans species, which, especially its so-called “developed” parts, will be the least capable and will certainly be annihilated. It is the human species that does not have much time left to reverse the mad and sinister rush towards the Great Abyss.

Albert Einstein had stressed the primacy of Intuition-much more important than Reason-in the great scientific discoveries and theories. Intuition had played the major role in his discoveries of the theories of relativity. His genius was not restricted to physics only, but extended into some of the social sciences, as well. He was also an outspoken critic of capitalism and advocate of socialism (Einstein 1949). The theory of the inheritance of acquired characteristics apparently is rooted in Intuition and is now being confirmed by great variety of experimental discoveries, based upon reason and the scientific methodology.

World situation has become much worse than when this article was written. The analyses, diagnoses, insights, and theory of the 1982 paper are even more applicable to the contemporary reality than that of that time period. Capitalist counter-revolutions have succeeded in the former socialist countries of USSR, Eastern Europe, and Peoples Republic of China (PRC). Non-capitalist paths of development that many Third World countries had chosen, discussed in this article, have also been destroyed by the imperialist wars, invasions, coercions, and the changed international environment. These societies are now also undergoing the similar mass psychological, cultural, epigenetic, and gene regulatory processes of the capitalist-technocratic conditioning of human nature that the ACITS have gone through for centuries. NATO and US have been intoxicatedly and dangerously provoking the competing super-powers of Russia and PRC by encircling them and creating, instigating, and supporting their adversaries. The technocratic militarist intoxication has also spread to the clients of the ACITS, as a result of large scale sales of high tech weapons to them and training their militaries. Saudi Arabia and its oil-rich Gulf allies have been bombing and destroying the impoverished country of Yemen and slaughtering its people for months now, with impunity. As part of the coalition with the forces of ACITS, they have also been bombing parts of Syria and Iraq massively and constantly, causing enormous losses of lives and destruction of properties and means of living. All the problems of terrorism and state terrorism in the Middle East and South Asia were created by the imperialist wars in those areas. Israel is also completely intoxicated with its technocratic militarism and continues to slaughter, oppress, persecute, and dispossess the Palestinians. Another client of ACITS, Ukraine, in which open fascists have become part of the government, state, and military, is also waging a ruthless and very dangerous war against its Russian minority-constantly provoking Russia in that process-with the support of NATO and the US. Pakistani military has been destroying

Pakistan's own Tribal Areas and their inhabitants for more than a year, with constant bombardments and ground operations.

The original paper is being reproduced here with only a few minor changes. The original version was entitled, "Biosocial regulation of human nature by social systems-science and technology-culture complexes", which has been changed to "Biosocial and epigenetic relativity of human nature: Relative to political economy, technology, and culture."

The theory and analyses of the interrelated and complex biosocial phenomena, being presented here, are completely original and remain the only ones in these areas, so far.

Since this paper was written, the research information and knowledge about the role of DNA methylation in the gene regulatory processes have greatly multiplied. DNA methylation is a heritable epigenetic mark involving the covalent transfer of a methyl group to the C-5 position of the cytosine ring of DNA by DNA methyltransferases (DNMTs). DNA methylation typically acts to repress gene transcription. DNA methylation and demethylation are now considered to be the most important processes in turning genes off and on.

Theses on the biosocial and epigenetic relativity of human nature

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I. Capitalist Human Nature + Capitalist Democracy = Demonocracy

Real democracy will only become possible when humans are freed from the slavery to and domination of The Capital and the Capitalist Class, when the greatly eroded and damaged parts of their human nature, involving both the Human Soul and Human Reason, are repaired, made wholesome, and restored, and when they become de-alienated and de-reified. That will only become possible under socialism and communism. Under various stages and forms of capitalism, they are condemned to remain mutilated and eroded, and to live only under the façade and illusions of "democracy". Capitalist democracy and human nature, mutually and dialectically, erode, distort, and pervert each other. This process greatly intensifies and accelerates in the ACITS, in which advanced technology and technocracy inextricably intertwine and combine with the advanced capitalism and create the most powerful macro-level social forces of dehumanization; inhumanization; erosion, perversion, and transformation of the Human Soul and Human Reason; mass alienation, and mass reification, all under the façade and illusions of "democracy". Capitalist Democracy under these conditions inevitably transforms into Capitalist Demonocracy.

Numerous logical, factual, macro-level, and micro-level inferences and conclusions can be derived from this new biosocial and epigenetic theory of the relativity of human nature. For example, the impossibility of anarchism should be self-evident. After millennia of dehumanizations; inhumanizations; alienation; reification; and differential epigenetic and biosocial regulation of human nature, in various class-divided societies in history-especially under the co-evolution of capitalism and technology-resulting in the current forms of advanced capitalism and imperialism-in which these processes have greatly accelerated and have been, both quantitatively and qualitatively, transformed into newer and more extreme forms, the restoration of the health and wholesomeness of human nature will require enormous macro-level intellectual and spiritual efforts, which will only become possible in the centrally planned politico-economic systems of socialism and communism, taking considerable historical time, on the inter-generational levels, even under these systems, for achieving significant results in these areas.

It should be pointed out that Marx and numerous other Marxists after him have already demonstrated the politico-economic and social impossibilities and infeasibilities of anarchism, as solution to the great problems of capitalism and imperialism. This new biosocial and epigenetic theory further substantiates their analyses, adding an important new dimension to them.

Anarchism always was, and continues to be, a totally subjectivist-idealist-delusional-sensationalist hypothesis and ideology, in complete dissociation from the existing realities of capitalism and imperialism, and the real possibilities of their overthrow, transformations, and replacement with another more just, rational, and rehumanizing social and politico-economic system. Even though, anarchism is completely impossible and infeasible, just imagine the consequences of it somehow succeeding in the contemporary American society. It should be clear to any thinking and informed person that, given the deformations of human nature into the current capitalist-imperialist forms, the types and levels of horrors, conflicts, bloodshed, chaos, and anarchy would be unimaginable.

Added on 7.24.2016

II. On the uniformity, diversity, and Changeability of human natures

Historically, the apologists and advocates of capitalism have always asserted that human nature has been and will continue to be unchangeable in the foreseeable future. They also talk about human nature as if it is the same and uniform, across all the various cultures and countries. Most of them have no background in genetics or biology and resort to lengthy philosophical and rational sounding arguments and discussions, deducing and elaborating them from wrong axioms and premises, and against all the empirical and historical evidence. They throw in the names of some famous philosophers, who had

speculated on the subject of human nature in metaphysical and idealistic ways and concocted all types of complicated, unprovable, confused, confusing, and unscientific generalizations about some supreme being, human body, and human mind. Most of them confine themselves within the limits of those generalizations, going back and forth between those of various philosophers, who had passed away long time ago, without adding anything new or original. It is a totally useless and time-wasting activity. However, the writings of these uncreative charlatans get published in the so-called prestigious journals and publishing houses. The lack of any really original and new ideas or theories is compensated for by excessive, sophisticated, and complex verbiage and vocabulary, as well as by scholarly appearances and the clever manipulation of concepts, which, in reality, amount to making the waters muddier and muddier to make them look deep. They support each other in such activities in various ways, e.g., by writing favorable reviews. Writings of Marx, Engels, Lenin, and other Marxists-who had profound insights into this matter-are almost totally excluded or distorted and falsified by overwhelming majority of the contemporary writers on this and other related subjects. A lot of them are academics and are able to develop rather large numbers of fans in the academia and general public. In this society, who writes or speaks something carries great weight, regardless of its actual value, and academic professors' writings and speeches are, in general, processed through those lenses. Here, I am talking about the mainstream academic and other writers. Of course, there are many exceptions to these generalizations, both among the academic and non-academic writers. However, it is scientifically valid to ignore such exceptions, when identifying and analyzing the general nature of phenomena.

Those, who have such background in biology and genetics, only resort to conventional genetics and selected parts of the Darwin's theory of evolution, which support their assertions, for example, the natural selection acting on mutations, evolutionarily, a very lengthy process, survival of the fittest, which, under capitalism and imperialism, are, by and large, not selected by the natural selective forces, but are selected by those of capitalism and imperialism, which may be, and are, better able to survive and succeed within the duration of those systems, but, in the long run, are leading to their own extinction, as well as to the extinction of the whole mankind and most other forms of life. They dishonestly omit those parts of Darwin's theory that contradict their assertions. Almost all of them are still resistant to placing and examining this most important matter in the light of the enormous research discoveries in the area of epigenetics and gene regulation, during the past few decades, which demonstrate the evolutionary plasticity and flexibility, over relatively short periods of time, as a result of external and internal environmental regulation of the genetic systems. Cabej has excellently documented and interpreted much of that information in his lengthy 2012 book (Cabej 2012).

Observationally and scientifically, it has never been valid to talk about one common and unchanging nature for the whole human species. In addition to sharing some common parts of human nature, there have been, and are, also different human natures in different human populations, existing and developing under different politico-economic, technological, cultural, mass psychological, and epigenetic regulatory systems.

As a result of very complex historical, philosophical, cultural, mass psychological, biological, and epigenetic reasons, the effects of and the above-mentioned damages to the Human Soul and Human Reason, caused by the politico-economic system-technocracy-culture complex have been most severe and extreme in the Anglo-Saxon ACITS. The effects of the overwhelming dominance and prevalence various varieties of positivism in the academia have also radiated into the general populations in the ACITS, especially those in the Anglo-American ACITS. Dialectical modes of cognition or perception are very rare in these populations. All this is also reflected in various types of intellectual, publication, and media outputs, among others, in these societies. Due to their military, politico-economic, and scientifico-technological dominance, these ACITS are also forcing other ACITS, as well as rest of the mankind, into their molds, hence increasing and radiating such effects and damages to other populations as well. In spite of such increasing uniformity in this regard, there are still great cultural and mass psychological differences between the Anglo-Saxon ACITS and other societies, not only those in the East, but also within Europe and Americas, e.g., populations of Latin origins, Greeks, and native peoples of the Americas, etc. However, these differences are progressively being reduced.

Added on 8.11.16

III. Political economy: The most fundamental of all the social environmental forces in the regulation of human nature

It is indubitable that both natural and social environments have powerful evolutionary and regulatory effects on human nature. Among all the various social environmental factors, political economy plays the fundamental and most important role in these. All the other factors, e.g., cultural, mass psychological, familial, religious, philosophical etc., are based upon it and are part of the superstructure, which interact with it dialectically, i-e., as the particular political economies create and condition these factors, the latter, in their turn, also feed back and influence the former. All these factors also have epigenetic causes and effects, among others. The key point is that political economy is the most fundamental and most powerful epigenetic evolutionary and regulatory force of the social environment, which evolves and regulates human nature. As such, it is also the main underlying force in the creation and stability of mass psychology, culture and cultural norms, and mass behavior in a given society, in addition to the creation and stability of all

the various institutions in that society. Needless to say that mass epigenetic regulations are also involved in all these processes.

All this has remained *terra incognita* thus far, except in Rahman's two articles (Rahman 1980, 1982), which have been ignored and condemned into darkness by the money-regulated clones in the academia, media, and other establishments. It is hardly surprising, as, with very rare exceptions, almost all of them are the intellectual pillars of the unjust, evil, dehumanizing, and inhumanizing political economy, and are well-rewarded for their services. The current intellectual environment in the ACITS, and their imitators and puppets, leaves very little room for any optimism in this most important matter, at this most critical stage of the evolutionary history of humans.

The explosion of research discoveries of the past twenty years in the areas of epigenetics, gene regulation, and developmental plasticity have shown that the Central Nervous System (CNS) and the enormous numbers and types of interconnected networks of neural circuits, and neurotransmitters, hormones, and other chemicals, associated with these, play controlling and regulating roles in the regulation of specific genes and batteries of genes for various morphological and behavioral traits in metazoans (multicellular organisms, with nervous systems, including humans), in response to external and/or internal environmental factors. Cabej (2012) has cited thousands of such research studies and discoveries in his book, *The Epigenetic Principles of Evolution*. On the basis of all that new, as well as previous such information, cited in some publications much earlier (Rahman 1980, 1982), it is indubitable that social, politico-economic, and natural environmental factors play a regulating role via the brain, CNS, and interconnected networks of neural circuits, through the release and secretions of numerous variable neurotransmitters, hormones, and other chemicals, that regulate the activities of specific genes or batteries of genes, for various morphological, psychological, and behavioral traits and actions, in humans. Such processes and mechanisms are also certainly involved in the political and electoral behavior of the electorates. This constitutes a new dimension of these phenomena. At this stage of the development of knowledge and research information, it is only possible to present a general outline of these processes, like the one I have presented above, which, nevertheless, explains their regularity and relative stability in the ACITS. Specific epigenetic and gene regulatory research information, which is relevant to these, is super-abundant and can be found in the above-cited book of Cabej (2012), as well as in some earlier articles (Rahman 1980, 1982). The key point is that the underlying processes that regulate various human faculties and behaviors, including those involved in the political and electoral behavior, are not merely mass psychological or cultural, but are also biological and physiological in nature, involving the interactions between environmental factors; brain; CNS; networks of neural circuits; neurotransmitters, hormones, and other chemicals; and genes and their differential regulation. These processes take

place mostly on the level of unconscious. The mass and individual unconscious play a greater role than the mass and individual consciousness in such regulations, which may even be the opposite of that required by the latter. Indeed, mass consciousness is predominantly created under the influence of such biosocial forces of the mass unconscious, with individual variations centered around it and conditioned by it. Can individuals overcome the effects of these forces within the framework of capitalist-imperialist political economy, like that of the US? It is possible, but is rare, and the overcoming is not complete, but only relative, as evidenced by the radical psychological conversions. Certainly, there are epigenetic and physiological dimensions of such conversions, the specifics of which are unknown at present. Mass psychological radical conversions in the population, in this regard, will only be possible during and after the overthrow of the capitalist-imperialist politico-economic system and its replacement with the socialist politico-economic system. However, even under socialism, it will take considerable time, perhaps on the inter-generational scale, for such transformations in the majorities.

Added on 9.12.16

IV. Effects of the domination of Capitalist-Imperialist Technological Rationality

In the Advanced Capitalist-Imperialist Technocratic Civilization (ACITC), almost everything, including the human spiritual and intellectual culture, is derived from the one-sided and all-powerful-and-dominant material culture. The relative independence, freedom, and powers of human spiritual and intellectual culture are greatly eroded and reduced

Reified and alienated members of capitalist societies are integrated by the most diabolical bonds of reification and alienation. Such alienated and reified human nature and mass psychology distort, pervert, and deform all the most important parts of human nature, including Rationality, Intellect, Soul, Spirit, Emotions, Feelings, and Instincts, etc. The alienated and reified Capitalist-Imperialist Technological Rationality (CITR) is elevated to the dominant and supreme position in mass mental apparatus, and all the other essential parts of human nature are subordinated to it and constantly tailored to conform to its requirements. There can be no doubt that the mechanisms and processes of epigenetics, gene regulation, and neuronal networks are also involved in such mass dehumanization, alienation, and reification, in addition to the mass psychological and cultural.

In the ACITC, CITR generates and produces uncountable types and varieties of technological, industrial, military, and consumer products-a great number of which are not only unnecessary, but, in fact, are harmful and damaging to human well-being, health, and survival-as well as numerous sources and

instruments of material powers, the policies and actions derived from which are able to masquerade as being “logical”, while, in fact, these are, frequently, not only the diametrical opposites of real logic and un-alienated and un-reified rationality, but are evil, unjust, and sinister in the extreme. Within this artificial environment, populated by zillions of human made artifacts and billions of humans-who, by and large, have themselves been turned into artifacts-, the carriers of CTR are able to parade around, with dizzying glitters, as the epitomes of civilization and development, primarily because of the one-sided material powers and benefits it has generated for them. All the deleterious effects on human nature, culture, and real civilization are covered up and remain in the dark, while the CTR, its carriers, products, and powers march triumphantly in the limelight of “progress” and “development”. In the ACITC, the price paid for such “progress” and “development” is the distortion, perversion, reification, alienation, erosion, and mutilation of some of the most important parts and foundations of human nature, including the rationality itself. Problems of alienation and reification are discussed in more detail in another article (Rahman 2015b).

Added on 9.27.16

V. Proposed theory of the two articles (Rahman 1980, 1982) on biosocial and epigenetic regulation and relativity of human nature

Heritable environmentally induced and adaptive inter- and intra-generational epigenetic changes have been of great importance in the evolutionary processes of all life forms, which have been subjected to extremist bias, ignorance, and neglect by overwhelming majority of the relevant parts of scientific community. It is only very recently that the tide has started to turn in the opposite directions. However, because of the dominance of various varieties of positivism in the academia, by and large, with very rare exceptions, all the enormous research information in these areas continues to be confined within the narrow empirical limits, without making the essential transition to the theoretical levels. Even the empiricism of overwhelming majority of so-called “social scientists” and “philosophers” in the ACITS is one-sided, omissive, selective, and flawed in such matters. The dehumanizing and inhumanizing symptoms and effects of capitalist and imperialist political economies on human nature, mass psychology, culture, and behavior are all-pervasive and gigantic. These are encountered and observable everywhere and are empirical. However, these are, by and large, ignored, and remain uninvestigated. The rare few, who acknowledge their existence, generally, distort their real nature, and substitute pseudo-causes for the real ones. As explained briefly below, these are even considered normal in the ACITS!

There are two basic causes for such mutilated empiricism in the ACITS:

1. The biased mass psychology of the researchers, which is produced by and subservient to capitalism and imperialism.

2. Inability to perceive or cognize the real nature of these symptoms and effects, because of the researchers themselves being the carriers of these. Because of that, as well as because overwhelming majority of the population is also like that, such dehumanizations and inhumanizations appear normal to their carriers.

As a result of great discoveries in the areas of epigenetics and gene regulation, it is of utmost importance to initiate researches on the epigenetic and gene regulatory effects of the social environment on the differential regulation of human nature. However, neither any empirical nor theoretical research has been started in this area. The following theory has been empirically and logically, as well as intuitively, formulated on the basis of all the available information in the various relevant interdisciplinary areas. As mentioned above, accurate scientific formulation of such an original and new macro-level theory in such complex interdisciplinary areas that are involved in it, is an extremely difficult task. Rahman had been trying to develop such a theory since the early 1970s and attempted to formulate it in his two papers of early 1980s (Rahman 1980, 1982). I believe that this attempt is a great improvement over those in the past.

Human nature is dialectical and relative to both natural and social environments. Like everything else, it consists of opposite and contradictory features, qualities, properties, and potentials, which are variable in different individuals in the populations, and are regulated by the natural and social environments, as well as the internal adaptive responses of individuals and populations to these. Such regulation involves complex integrated and intertwined structures and processes of epigenetics; gene regulation; neuronal networks, neurotransmitters, hormones, and other regulatory chemicals; mass psychology; and culture, which create different types of variability and plasticity than those of mutations and natural selection. Of course, all types of variability is acted upon by the natural selection, as well as, increasingly, by human selection, the latter even greatly replacing the former, wherever it can.

As far as the social environment is concerned, political economy plays the basic, central, and all-pervasive role in the differential regulation of human nature, with other components of the social environment-which are created by and around it-having relative independence of variable degrees, interacting with it and influencing it dialectically, and having their own differential regulatory effects, also of variable degrees, on the human nature. In Homo sapiens, because of their unique and highly

developed brain, nervous system, and social structures and organizations, the social environment plays an incomparably greater and more complex role in the epigenetic regulatory and evolutionary processes than in the other life forms. As mentioned above, among all the various components of the social environment, political economy forms the center of gravitation in this regard, around which all the other components revolve and interact with.

Added on 10.25.2016

VI. Intellect, Reason, and Soul.

Reason and Soul are extremely complex and diverse parts of Human Nature and include various different types of parts within themselves, for example, in case of Reason, Analytical Reason and Dialectical Reason, Formal Logic and Dialectical Logic, and in case of Soul, Higher Qualities, like Feelings and Passions of Justice, Duty, Love, Sacred, Truth, Goodness, and Beauty; Extra Sensory Perception (ESP); Intuition, etc.

In the ACITS and their imitators and clients, fetishization of zillions of commodities, reification, alienation, and commodification of humans, their intellects, and souls have reached indescribably sinister dimensions and levels. Politico-economic, mass psychological, cultural, biosocial, and epigenetic causes and effects are related to and interact with each other dialectically, constantly producing and advancing to such newer dimensions and levels.

More than two thousand years ago, Jesus Christ had stated, "What is a man profited, if he shall gain the whole world, and lose his own soul." Matthew 16:26. Among other things, it shows that he was aware that humans can lose their souls. The developmental dynamics of the dialects of above-mentioned causes and effects in the history of class-divided societies, and especially in the ACITS, has led precisely to that result. Human Soul has already been greatly eroded. This article explicates the nature of this developmental dynamics, in the light of the most advanced interdisciplinary scientific information and knowledge.

In the history of Western Philosophy, Reason has been progressively elevated to the supreme position. Under Western Capitalist Civilization (WCC), it has been predominantly the Analytical Reason and Formal Logic that have now developed into Capitalist Technological Rationality (CTR). Dialectical Reason and Dialectical Logic have remained, by and large, alien to WCC, in which, the Soul, with its various complex components, has also been subordinated and tailored to fit into the requirements of CTR. These are the greatest deficiencies and flaws built into the very foundations of WCC and the

current ACITS, which manifest themselves in all areas of knowledge, culture, mass psychology, human nature, and human and international relations.

Also, in the history of Western Philosophy, Reason and Intellect have been arbitrarily fragmented and even opposed to each other, e.g., in Plato, Aristotle, and Hegel, without any scientific or biological basis. It is very likely that both Analytical and Dialectical Reasons originate in the Intellect. To arrive at the final results and meanings of their operations, it is necessary to not only coordinate them with each other, but also with the requirements of the Soul. Soul has its integrating and coordinating reasons, without which the CTR, the transformed form of the abstract Reason of the Intellect, and its technological applications, ultimately leads to disastrous and sinister results.

Notes

Cabej, N. R. 2012. *Epigenetic Principles of Evolution*. London, UK and Waltham, MA, USA: Elsevier, 804 pages.

Einstein, A. 1949. Why Socialism? *Monthly Review*.

Fromm, E. 1970. *Crisis of Psychoanalysis*. Holt, Rinehart, Winston; 1st edition.

Fromm, E. 1965. *Marx's Concept of Man; Marx's Economic and Philosophical Manuscripts*. Frederick Ungar.

Marx, K. 1845 [1969]. *Marx/Engels Selected Works*. Volume 1. Moscow, USSR: Progress Publishers. Pp. 13 – 15.

Melman, S. 1970. *Pentagon Capitalism: The Political Economy of War*. New York, St. Louis, San Francisco, Toronto: McGraw-Hill Book Company.

Rahman, F. 1980. "Effects of the contemporary technological model on the genetic regulation of inner human faculties." *Journal of Social and Biological Structures* 3: 375-389.

<https://imperialismandthethirdworld.wordpress.com/2014/08/11/effects-of-the-contemporary-technological-model-on-the-genetic-regulation-of-inner-human-faculties-by-fazal-rahman-ph-d/>

Rahman, F. 1982. *Biosocial regulation of human nature by social systems-science and technology-culture complexes*. 60 pages. Paper presented at the International Conference of Scientists and Scholars in Grenada, Spain, during 1982. The conference was organized jointly by the Spanish Ministry of Education and Culture and the Swedish International Federation of Institutes for Advanced Studies (IFIAS).

Rahman, F. 2015a. Multidimensional and complex nature and effects of imperialism on democracy, society, nature, and human nature. Imperialism and the Thirdworld.wordpress.com.

<https://imperialismandthethirdworld.wordpress.com/2015/03/29/multidimensional-and-complex-nature-and-effects-of-imperialism-on-democracy-society-nature-and-human-nature-updated-by-fazal-rahman-phd/>

Rahman, F. 2015b. *Dialectics of the Subjective and Objective in the Western Capitalist-Technocratic Civilization: Development of the greatest and most sinister alienation in history*. Imperialism and the Thirdworld.wordpress.com.

<https://imperialismandthethirdworld.wordpress.com/2015/12/04/dialectics-of-the-subjective-and-objective-in-the-western-capitalist-technocratic-civilization-development-of-the-greatest-and-most-sinister-alienation-in-history-by-fazal-rahman-phd/>

The 1982 Paper

Summary

The nature of gene regulatory processes for various human faculties in interactions with different social systems-science and technology-culture complexes in human societies is examined in this paper. The general and politico-economic history of relationships between imperialism and the Third World societies is briefly reviewed. Some recent research findings which clearly demonstrate that domestication forces and pressures and directional selection (analogous to changes in cultural forces and pressures in humans) bring about tangible and heritable gene regulatory changes in some animals are reviewed and correlated with the hypotheses and discoveries of our theoretical research. It is concluded that the imperialist capitalism-science and technology-culture complex, especially in its extremist forms and advanced stages, like those of the US, gives rise to an extreme imbalance in the socio-genetic regulation of human faculties in favor of Capitalist Technological Rationality (CTR), Will to Power, and associated faculties (or First Category in terms of our previous paper) and against the expression of Soul and Synthetic and Spiritual-Emotional faculties (or in terms of previous paper, Second Category). Such differential regulation has been taking place on the multidimensional levels of mass psychology, culture, epigenetics, and gene regulation, producing profound changes, disturbances, and disruptions in the internal and external ecologies of human nature. Relatively primitive socio-economic formation-technology complexes, characteristic of the Third World, involve a relatively balanced expression of genes for these categories, within the context of a relatively low level of general development in which the Soul and Spiritual- Emotional, and Synthetic Faculties are nevertheless relatively well-activated and well-integrated. In socialist societies the genes

for both categories are expressed in relatively balanced form but on a much higher level of general development than in the Third World. It is inferred that the Third World populations would need to follow the non-capitalist road to development in order to maintain, and, at the same time, advance to a higher dialectical level, the relative balance between the two categories of human faculties.

Introduction

In the previous paper (Rahman, 1980) interactions of the contemporary technological model and social systems with the genetic regulation of inner human faculties were examined mainly in reference to the advanced capitalist societies of the West. Since then the political and military situation in the world has rapidly deteriorated even further. This is but the logical outcome of the development of a capitalist-imperialist system of world political economy that has become addicted and dedicated to domination, exploitation, and plunder of the resources of most of the peoples of this world. The material foundations of this monstrous system are largely provided by scientific and technological developments. Only the most conceited and ignorant scientists can still claim the neutral character of science and technology. In human society, science and technology have always been inseparably intertwined with the most vital areas of social, political, and economic life. In fact, technology and the world of objects that it creates have become the determining forces of all social and spiritual life, in alienated form, under the conditions of advanced capitalism. This basic alienation, in the Marxist sense of the word, has literally transformed hundreds of millions of people into mere appendages of the technological gadgets and objects. Technological apparatus now not only constitutes an incredible material power over and beyond the control of masses of people, but also of the ruling classes themselves, in the advanced alienated society. This, in conjunction with another great alienating social force, capital, that has gained tremendous power over the lives of people, is now playing a determining role in the most vital decisions, choices, and actions in areas that are matters of life and death for the society. In the U.S., overwhelming majority of the population has been complicit with militarism, development of nuclear and other weapons of mass destruction, and unleashing of imperialist wars in the Third World countries that are militarily incomparably weaker and no match for it. In the presence of overwhelming objective and transparent evidence, most are still unable to see clearly that it is their government, military, and corporations, the dominant figures of which are frequently interchangeable, that are the basic structural as well as intentional cause of this mad rush towards the ultimate catastrophe, the Third World War. Lack of clarity at this crucial time will have extremely negative effects on the effectiveness of the peace movement in the U.S. At a time when mankind is passing through the most dangerous period of its history, people of this country have offered what is essentially a war government to rest of the world.

We have discussed the mass regulatory basis of the cultural, mass psychological, epigenetic, and political problems-with emphasis on technocracy- in the advanced capitalist-imperialist society in the previous paper. In this paper, besides elaborating on that further, we will also investigate the position of the Third World in such an international milieu, starting with brief accounts of their general history and the cultural and psychobiological regulatory processes involved in the mass regulation of higher faculties in their populations. Some comparisons will be made with imperialist and socialist societies, and general logical directions will be indicated towards which the social systems and technological apparatuses of these societies will evolve under the conditions of contemporary international, political, economic, and military reality. Both the prerequisites for and effects of these changes will be examined in regards to development as a whole as well as to the human nature.

Emphasis on human nature reflects the focus of this paper. As is made clear throughout this paper, its regulation is inseparably and dialectically connected to the socio-cultural processes that ultimately originate in the economic basis of a given socio-economic formation. However, both the socio-cultural processes and human nature possess relative independence and actively and dialectically influence the development of the economic basis as it influences them. In an atmosphere of all-pervasive and severe alienation, like that prevalent in the advanced alienated society, it may not seem to make sense, but we have considered humans to be the most important of productive forces, the ultimate cause and the goal of historical progress. Consequently, the selectively deleterious effects of certain social system-technological complexes on certain human faculties are of utmost importance in themselves, besides their role in the processes of economic and technological development, which may even be of a “positive” nature in the abstract sense and in the short run. In the long run and in the concrete sense, as we will see later, such one-sided development in some human societies creates the greatest disaster for all mankind, as well as for other forms of life, if the radical transformations are not brought about in time, in the above complexes. In this article, more emphasis is placed on the role of politico-economic social systems than in the previous paper. Review of literature in this article includes various international sources of research, information, and knowledge, including numerous Soviet sources, in addition to American sources.

General Historical and Political Economic Context

Ever since the human societies evolved from primitive-communal into class-divided forms, collective and individual forms of domination, exploitation, legal and illegal plunder, and conflicts and wars have been the characteristic features of these societies. During the past 1,500 years there have been 14,000 wars, by the most modest calculations, and they have killed more than

3,000,000,000 people. More than 30 major military conflicts have occurred in the past thirty years, after the Second World War in which more than 54,000,000 people were killed and more than 90,000,000 wounded. In the First World War 10,000,000 were killed and 20,000,000 maimed in the armed forces of various countries alone (Korionov 1975). It is worth noting that both world wars were the result of the policy of imperialism and grew out of the antagonisms within the imperialist system, for redivision of the world and its resources. Any discussion about the Third World must start with imperialism. The Third World became the Third World and continues to be so mainly by the colonial and neocolonial operations of imperialism. Conversely, imperialist powers enriched themselves and enhanced their powers enormously by impoverishing the Third World. The colonial empires of certain present-day powers began to take shape as early as the 15th and 16th centuries. By the 1870s, Great Britain, Portugal, the Netherlands, and France had considerable colonial empires. From 1876 to 1914 there were rapid annexations of colonies. Great Britain seized two-fifths of the new territory and over half the population there became subjected to its colonial yoke. France also annexed two-fifths of this new territory but with a much lower density of population. The other imperialist powers (Germany, the U.S.A., Japan, and Italy) "bagged" less (Kozlov 1977, p. 357). Hence a new phase of monstrous subjugation, oppression, exploitation, and cultural destruction, involving hundreds of millions of people, and massive transfer of resources from the "bagged" territories to centers of imperialist powers was unleashed. During the period of colonialism incalculable damage was inflicted upon the native cultural, industrial, economic, and agricultural development. In some cases almost the entire populations of human beings were annihilated, as for instance was the case with North and South American native populations. In a few centuries more than 100,000,000 people were shipped out of Africa as slaves. Over 5,000,000 Africans have been killed in the past century alone by the military operations of imperialists (Korionov 1975, p. 22).

According to the prestigious Stockholm International Peace Research Institute (SIPRI) data, 1,700,000 Indochinese people were killed, 3,600,000 wounded, and 17,000,000 displaced by the barbaric Second Indo-China War unleashed by U. S. imperialism against the people of Indochina (SIPRI 1976, p. 52). However, the actual figures are much higher than the SIPRI estimates. It is now established that more than 3 million Vietnamese and 58000 Americans were killed in that war. That sinister war was also the first in modern history in which environmental destruction was an intentional and substantial part of imperialist barbarism. By means of very large quantities of high explosive munitions, deadly herbicides, and heavy land clearing tractors, 568,000 hectares of forest lands were completely or essentially completely devastated while 5,600,000 hectares, representing 54 percent of the forest lands, were partially (severely) damaged in South Vietnam alone (SIPRI 1977, pp. 198,199). In that atrocious war, by the summer of 1972 more bombs and shells had been used by U. S. imperialism in Indochina than in all

the wars previously fought throughout history (Korionov 1975, p. 58). Despite the most monstrous efforts of U. S. imperialism to win the war, it was shamefully defeated in Vietnam. Its technological advantages were offset by the unprecedented heroism and superior strategic and tactical planning and military actions by the Vietnamese revolutionary forces, in which dialectical rationality and spiritual-emotional factors played one of the major roles. Ingenious use of the dialectical methods in guerilla warfare and later in general conventional warfare by the Vietnamese remains unmatched in history. [For details of these strategies and tactics, see Giap (1974), as well as his other writings.]

Although colonial empires have existed long before the emergence of capitalism on the historical scene, the question of colonialism has acquired an entirely new meaning in the epoch of imperialist capitalism. Lenin, during 1916, was the first writer on this subject who made a profound and brilliant scientific analysis of the nature of modern imperialism as the highest stage of the development of capitalism. He distinguished this stage, monopoly capitalism, from pre-monopoly, free competition capitalism, with the former becoming the predominant form around the turn of the 20th Century. He also showed the essence of imperialism to be economic in nature (Lenin 1952). Imperialism is a world economic system in which the powerful monopolies from the Western capitalist centers seek to control the natural and human resources of other countries (periphery) in their insatiable greed for higher profits and power. In this pursuit they search for sources of cheap labor, cheap raw materials, markets for manufactured goods, and for export of capital for the purpose of multiplied returns. Export of capital is typical of the monopoly stage of capitalism, in which monopolies seek to enhance their profits and world domination to fantastic levels. Even today most Americans are completely ignorant of the fact that most of what is labeled as “aid” consists of highly profitable exports of capital and investments to safeguard it. Transnational and multinational monopolies divide up the whole capitalist world into zones of their private economic exploitation and plunder. Hence, as a matter of fact, the whole capitalist world constitutes a huge single economic system in which different parts are joined together by economic links predominantly established by the monopolies. These links help the monopolies to transfer fabulous resources from the periphery (Third World) to the imperialist centers. For example, the progressive American economist Victor Perlo has estimated that the profits of U.S. big business from its foreign empire have catapulted from \$5,000 million in 1960, to \$14,000 million in 1970, to approximately 80,000 million in 1980 (Perlo 1980b)!

Monopolies need a political structure, both in the center and in the periphery, to ensure the extraction of these exorbitant and ever-increasing profits. In the Third World countries they try, successfully in many cases, to impose systems of government that will guarantee maximum possible stable profits. In most cases these systems turn out to be brutal, fascist, military or royal

dictatorships that suppress the upsurge of masses of people for better living conditions, real justice, equality, freedom, and dignity, with brute force, hence ensuring super-profits for international and national monopolies as well as for themselves and keeping the masses of people impoverished for this purpose. The U.S. government, which basically represents the power and interests of big corporations, supports these regimes economically, politically, and militarily in the name of “freedom”, “peace”, and “stability”. Hence while the big corporations reap huge profits by the super-exploitation of the working masses of Third World countries, investments on their behalf to keep the puppet regimes in power come from the national budget, i.e. from the pockets of American taxpayers. This process has been going on throughout much of the history of the US and by now it is well documented (Amin 1976 a, b; Khlebnikov 1981; Kozlov 1977; Lenin 1952).

This massive transfer of wealth from the Third World countries to imperialist centers has thus far enabled the ruling classes of the latter to make concessions to their own working classes, hence solving the problem of preventing revolutionary developments in their own countries. But by protecting one of its flanks, imperialist capitalism has become extremely vulnerable in its other, the periphery. The center of gravity of revolutionary change now has shifted to the periphery. The Third World at this time is in revolutionary turmoil. Rapid historical changes of great importance are taking place there, liberating the masses from centuries of economic and political domination by foreign powers and their local flunkies. Since 1978 alone, three major revolutions have taken place in Afghanistan, Iran, and Nicaragua. Powerful blows have been dealt to the imperialist system since the First World War. A general crisis in this system set in during this period which has passed through several stages by now. Numerous countries broke away from the imperialist yoke since then. Eighty independent national states were formed since the mid-1950s alone, a period of relative peace. In one year, 1960, seventeen African countries gained their independence (Kozlov 1977, P. 424). However, after their formal independence, brutal neocolonial exploitation of most of the former colonies continues in different forms. Now many national liberation movements are entering the phase of struggle for economic independence, and imperialism is in no position in some cases to block the path of progress in these societies. Soviet economists have estimated that monopolies of imperialist powers were drawing off about \$25,000 million annually from developing countries during the 1970s while their total investments, including reinvestments, did not exceed \$8,000 million a year. As a consequence of manipulations in the balance of export and import prices alone, Third World countries were found to be losing \$14,000 million to \$15,000 million a year, which is more than double the official economic aid extended to them through the U.N. and other international organizations (some \$7,000 million a year) (Kozlov 1977, pp. 429, 430).

Presently U.S.A. is the main bulwark of modern imperialism, supporting and arming the reactionary anti-people, anti-freedom forces throughout the world, in El Salvador, Nicaragua, throughout the Middle East, North Africa, South Asia, Southeast Asia, Southern Africa, everywhere. Even a superficial examination of the historical events in this connection reveals that this diabolical role of the U.S. in international affairs is a result of the structural pattern inherent in its imperialist system rather than the outcome of erroneous policies of certain individuals, although the latter can doubtlessly, as is evident in the case of the present U.S. administration, exacerbate the above problems in the Third World.

In the ensuing discussion we will show that besides the economic and militarist basis of the nature of imperialism, the socio-cultural forces and pressures of the particular complex that it forms with technology generate specific types of behavioral and gene regulatory processes in the populations in its centers that not only make life miserable for masses of people in the Third World but also for those in the center. Rampant crime; severe and widespread social alienation; generally brutal and mechanical character structure; morbid levels of violence; racism; ever-increasing neurosis; absence of spiritual, emotional, and sexual gratification in any significant depth, reflected in shallow, mechanical, and distorted human relationships; generally superfluous lifestyles; mass unemployment; alarming levels of drug addiction; alcoholism; etc. are some of the outward manifestations of deeply rooted misery of life in the center. Different effects of other social system-technology complexes will also be explicated.

Review of Literature

In a recent publication, Dr. V. A. Engelhardt (1981), Director of the Institute of Molecular Biology of the U.S.S.R. Academy of Sciences, analyzed the relationships between science, technology, humanism, and social systems. His essay uses a dialectical approach to this problem, and both the positive and negative aspects and the roles and responsibilities of scientists and social systems in their interrelationships are elaborated upon. He considers the investigations concerning the inner, socially determined, spiritual milieu of human personality to be of enormous importance. He explains the negative dehumanizing influence of technology on human spirit as well as its other disastrous manifestations within the context of the social system of capitalism. His emphasis upon the great importance of well-balanced, socially determined human personality structure, in which intellect and spirit, as well as science, technology, and humanism are well integrated, is prominent throughout the essay.

Such informed studies by prominent scientists are badly needed today if further dehumanization and the blind rush to the abyss are to be averted. Yet it is extremely rare to find discussions of this sort in the writings of both

natural and social scientists in the Western capitalist and imperialist societies in general, and that of the US in particular.

Our main focus in this section is on the area of biological research. Since the publication of the last paper on these subjects (Rahman 1980), very significant research literature has appeared, some of which is most relevant to the gene regulatory part of our theory. We will not repeat here the gene regulatory information that was presented in the previous article. To gain a comprehensive understanding of this problem, the reader is referred to the above paper.

The most important study appeared in the July-August 1981 issue of *The Journal of Heredity*, published by the American Genetic Association. This publication was the result of a long period of research done by Belayaev et al. (1981b) at the Institute of Cytology and Genetics of the Siberian Department of the U.S.S.R. Academy of Sciences. During that period, wild populations of foxes were subjected to the process of domestication under experimental conditions. Such domestication proved to be highly successful. It was discovered during the domestication process that behavioral changes in the fox groups that were most domesticated were accompanied by a series of morphological (pie-bald or white spotting, modified ear and tail carriage) and physiological (extra-seasonal rhythms of reproduction and molt) modifications. A detailed analysis was made of the trait of pie-bald spotting, designated as the star character. This trait, manifesting phenotypic variability, involves white spotting on the head, lower jaws, breast, and belly and has not been observed or reported in any fox populations previously. Careful pedigree records of data were prepared and the progenies of specific crosses were analyzed in order to obtain information about the mode of inheritance of this character. After rigorous scientific testing and analysis of various hypotheses for explaining the appearance of star trait in the fox populations being subjected to the pressures of domestication, it became clear that it was the result of functional activation of a gene that had been in a dormant state. Selection for domestic behavior was found to be responsible for the activation of this dormant gene. Once in an active state, the gene subsequently behaved like a discrete Mendelian unit, hereditarily transmissible. Previously, changes in the hormonal balance in foxes selected for tame behavior have been demonstrated (Trut et al. 1972). The role of hormones in the regulation of genes is now unquestionable. Some of the literature about this was reviewed in the last paper. A great number of studies have since appeared that have further solidified this fact. In the above study, it was concluded that the star gene was regulated to its active state through the mediation of hormones. Acting through systems of hormonal regulation, this type of destabilizing selection pressure for behavior was shown to cause a spectrum of changes in morphological characters and functions that are ensured by stabilizing selection. Hence drastic increase in variability ensues from such a process, and the speed of mechanisms giving rise to new forms is

accelerated. Moreover, analogous gene regulatory systems switch into operation under the pressures and forces of destabilizing selection in different species as these are, more or less, similar in their essence.

The above paper is a tremendous advance in our understanding of the mechanisms of interactions between the environmental and gene regulatory systems. It confirms some of the fundamental propositions of our previous article. These are:

1. Activation and inactivation of genes in higher organisms is influenced by environmental factors. In human beings, politico-economic and socio-cultural environmental factors play a determining and dialectical role in the differential regulation of human nature, on various levels, including the epigenetic and gene regulatory. In foxes, changes in their socio-cultural milieu (domestication) are reflected in changes in the regulation of their genetic material (star gene) determining a tangible character expressed phenotypically as pie-bald spotting.
2. Transmissibility of gene regulatory changes in general was anticipated in our previous paper (Rahman 1980, p. 385). Research of Soviet geneticists has confirmed it empirically in the case of foxes.
3. The similarity in the conclusions drawn is also remarkable. Both papers have treated selection and variability as organically linked (in distinction from their traditional treatment as independent events) with selection (in the case of foxes, pressures of domestication; in the case of humans, directional politico-economic, cultural, and other pressures in the differential regulation of various parts of human nature) actively regulating the variability through intermediary regulators, e.g. hormones. In the case of foxes a previously dormant gene becomes activated as a result of directional domestication and selection. Although regulation of human faculties is much more complex, the basic gene regulatory mechanism is similar in essence. Politico-economic, cultural, and other social forces and selective pressures can and do differentially activate or inactivate the different genes involved to variable degrees. The above work will be remembered as a classic in the history of the development of knowledge in the area of gene regulation in higher organisms.

In another study at the same Soviet Institute, published in the March-April 1981 issue of *The Journal of Heredity*, Belyaev et. al. (1981a) reported similar results in their studies of the inheritance of alternative states of the fused gene in house mice. The fused gene (Fu) determines a phenotype in which the tail is shorter than normal and is fused in Fu/+ mice. Extreme degrees of tail abnormalities are observed in Fu/Fu homozygotes which also show decreased viability. On the basis of extensive experimentation and progeny analysis involving mice populations subjected to hundreds of generations of the domestication process as well as wild and less tame mice, it was

discovered that the fused (Fu) gene passed spontaneously from an active to inactive state and also reverted back to the initial state. After entering one of these alternative states, Fu gene was found to be heritably transmitted to genotypically different progenies in that state, indicating that the new state behaved as a distinct entity. Similar to the star gene in foxes, Fu behaves differently in the genotypes of wild and domesticated animals. Wild and laboratory strains of rodents are known to differ strongly in many physiological traits, including the levels of hormones. Transition to both alternative states of this gene clearly involves alterations in the hormonal status which regulates its variable expression. It was concluded that selection in the course of the domestication process is a strong evolutionary stimulus acting through the mechanisms of gene regulation.

At a recent international conference arranged by Dahlem Konferenzen in West Berlin, the focus of evolutionary modifications, for majority of the participants, was in the developing embryo (Lewin 1981c). The conference was an effort to rehabilitate the developmental process, which takes place through genetic regulation, as an evolutionary force in its own right and not merely a passive random pool of variation subject to the omnipotence of natural selection. As S. J. Gould of Harvard University summed it up, while natural selection may be the propelling force of change, the organism also participates substantially in the evolutionary process by restricting the direction that change will take. These efforts by highly qualified and knowledgeable biologists to elevate the developmental and gene regulatory process to the center of the evolutionary stage alongside natural selection are but a reflection of the actual state of affairs in this field, in which now there is a very significant and growing amount of information that cannot be explained or accommodated by the orthodox theoretical framework. There is a great need at this time for the creative growth and renewal of theory in this area. Ignoring the conflicting evidence and data or clothing it with the old theory will only delay the growth of understanding indefinitely. Use of the dialectical method can be of great help in the development of a new theoretical framework in this regard.

Conover and Kynard (1981) reported that sex determination in an atherinid fish, the Atlantic silverside (*Menidia menidia*) is under the control of both genotype and temperature during a specific period of larval development. On the basis of experimental information it was demonstrated that temperature directly affected sexual differentiation long after conception.

Work with ants of *Pheidole bicarinata* has shown that topical application of juvenile hormone analog (JHA) induces soldier development in this species. Juvenile hormone (JH), besides playing a role in queen determination, mediates soldier determination by its gene regulatory action. Female ants are separated into a fertile queen caste and a facultatively or obligately sterile worker caste. In some species the worker caste is itself divided into

subcastes. Large workers, called majors or soldiers, are usually behaviorally specialized and often serve a defensive function. Minor and media workers are generally responsible for more routine work of colony life. The above species is characterized by a completely dimorphic worker caste. Researchers of this work, Wheeler and Nijhout (1981), propose that nutritional state directly controls the endogenous titer of JH. Soldiers are only produced when larvae are fed a highly proteinaceous diet. This research information is similar to that of Warwick E. Kerr and his coworkers, reviewed in our previous paper, demonstrating the determining role of JH in sex and caste determination in bees through gene regulatory action. In the case of ant soldiers, induction, under experimental conditions, takes place if JHA is present during a period of sensitivity in the last larval instar. Control of the timing of metamorphosis seems to be involved in the worker dimorphism. Soldier development provoked by JHA treatment was indistinguishable from normal soldier development.

Shii et al. (1980) reported that developmental abnormalities observed in certain hybrids of *Phaseolus vulgaris* at Cali, Colombia, were genetic in nature and resulted from high temperature triggered gene regulatory processes. Hormonal derangement was presumed to underlie these abnormalities. Identical hybrid populations grown at cooler temperatures in the greenhouse at Corvallis, Oregon, did not develop these deformities.

An important area in which information has advanced significantly is the genetic basis of the regulation of the immune system. Benacerraf (1981) reviewed the history of developments in this field in his Nobel lecture. Discovery of the immune response or Ir genes, immune response-associated or Ia molecules (reported to be Ir gene products), and their critical role in the T cell-B cell interactions greatly enhanced knowledge of the major histocompatibility complex (MHC). Kirsch et al. (1981) reported multiple switch-like regions in the germ-line DNA outside the heavy chain constant region locus. Switch regions within the immunoglobulin heavy chain locus are known to increase the genetic possibilities within the humoral immune system. Discovery of switch-like segments outside the immunoglobulin locus, regulating the genes from a distance, reveals highly developed sophistication and flexibility of interactions in the cells. In the immune system, active genes have been found to be assembled from distant pieces of DNA, hence generating additional genetic variability within the system from a limited starting base. Recently, research of Steele (1979, 1981) and Gorczynski and Steele (1981) has stirred up considerable controversy. The essence of this controversy lies in the fact that they presented results of carefully and rigorously conducted scientific research with mice that contradicted the old Weismann's doctrine which isolates soma from the germ line inheritance, rejecting the possibility of any influences of the former on the latter. The above researchers showed that somatically acquired immunological tolerance to foreign histocompatibility antigens in male inbred mice can be transmitted

at high frequency to first- and second-generation offspring without exposure of progeny to the tolerizing antigens. They further demonstrated that individual male mice made tolerant to two different H-2 haplotypes can transmit the tolerance state to each haplotype independently and simultaneously, at a high frequency, to both the first- and second-generation progeny, indicating the multiple inheritance of independently acquired somatic characters in a Mendelian fashion. Several other scientists could not confirm their results by replicating the experiments. However, Steele (1981) pointed out that there were serious differences in methodology, perspectives, and conclusions drawn between their own work and that of the others. He showed that the results of their opponents, contrary to negating their own, in fact confirmed them.

The results of Steele's and Gorczynski's work indicate a case of heritable gene regulatory changes analogous to the work of Belyaev (1981 a, b) cited above. Orthodox resistance to such important discoveries has been the rule in the history of development of knowledge. One would hope that some lesson has been learned from the past in this regard. It is very likely that inheritance of gene regulatory changes, with varying degrees of stability, is widespread in higher organisms, including humans, and that it is a process of general nature. Hopefully the absolutist and exclusivist doctrines in this area will be modified under the pressure of rapidly accumulating scientific research findings without much further delay. Lewin (1981d) pointed out that it is now a truism to say that the genetic material of higher organisms is in a greater dynamic turnover than could ever have been predicted. He quoted Philip Leder, a leading authority on globin gene loci at the Harvard Medical School, as saying that the globin locus is constantly pumping out copies of its genes and is bombarding the rest of the genome with them, and that what holds for globin must go for other genes too. He implied that all gene families are potential sources of new genes, through transposition, subsequent divergence of gene structure, and eventual recruitment to new functions. Integration of gene copies thrown out by histone gene families, away from the main cluster, has also been demonstrated. One of the globin genes, alpha 3, was found to be in an inactive functionless state in mice (New Scientist, 21 Aug. 1980, p. 587). Switching off mechanisms, in past evolutionary history, seem to have been responsible for rendering an active gene into this inactive state.

Many other researchers have also reported the presence and function of movable DNA sequences in eukaryotic genomes. According to most of them, these are involved in the regulation of gene expression, turning the genes on or off as they move about their respective genomes. In addition, they are capable of causing mutations and chromosomal rearrangements (Marx 1981 a). Lewin (1981b) interviewed several scientists engaged in research on split genes and splicing mechanisms. Paul Berg of Stanford University believed that splicing of intervening DNA sequences in nature was involved in the

coordinated control of multigene expression. Some evidence for this already exists in the case of cytochrome b gene, cytochrome b oxidase gene, a DNA virus SV40, etc.

Davidson and Britten (1979), whose theory was reviewed in our last paper, have more recently further deepened it, retaining the control logic of the original theory. In the further advancement of their theory, it is proposed that regulatory interactions occur between the continuously synthesized RNA copies of structural genes of the genome and complementary repetitive sequence transcripts by the formation of RNA-RNA duplexes. Transcription of regulatory DNA regions into control RNA's would then be reflected in the organization of gene expression.

Participants in the First Annual Congress for Recombinant DNA Research held during 1981 in San Francisco considered understanding of gene regulatory processes to be the biggest challenge since the discovery of the double helix (Lewin 1981a). Discovery of the fragmented nature of genes (discontinuous strings of nucleotide bases), with intervening sequences, in the nucleated cells and viruses that invade the nuclei of such cells was a major advance in this area in recent years. It has become obvious now that DNA in the chromosomes is subject to a very high degree of movement through various mechanisms, e.g. excision of sections from one location and their insertion in another, transfer from one chromosome to its partner, etc. Such changes are clearly of great evolutionary significance in which split gene arrangements play a major role. Charles Weismann of the University of Zurich reported that by combining fragments from different interferon producing genes, a hybrid interferon gene was created which produced new interferons, some of which performed better in biological tests than the ones naturally produced. John Baxter of the University of California at San Francisco cited the case of human growth hormone in which one of the intervening sequences is processed in two different ways giving two hormone variants, one of which stimulates growth but does not affect carbohydrate metabolism, while the other possesses both properties. It is a good example of how one gene, through slight variations in the processing of intervening regions and subsequent joining of coding regions, can produce different messenger RNA's and consequently different protein molecules. Many outstanding researchers in the above conference reported similar findings and conclusions.

Levings et al. (1980) discovered that disappearance of plasmid-like DNA's, S-1 and S-2, and changes in the mitochondrial chromosomal DNA were involved in the spontaneous reversion to fertility in the S male-sterile cytoplasm of maize. They found evidence for this reversion to be associated with the insertion of the plasmid-like sequences into mitochondrial chromosomes. Spontaneous reductions in the synthesis of particular

hormones, often accompanied by the appearance of new and predictable hormones, occur frequently in the hormone-producing tumors.

Rosenfeld et al. (1981) observed that in rat calcitonin-producing medullary thyroid carcinoma, conversion from a high to low producer state is associated with a series of reproducible alterations in calcitonin gene expression. These changes are associated with the production of a new cytoplasmic mRNA. These observations are in accord with the recent developments in the area of post-transcriptional regulation at the level of nuclear precursors processing.

Groudine et al. (1981) showed that undermethylation is involved in the differential regulation of active ev-3 and inactive ev-1 endogenous retrovirus loci in the chick cells. Active ev-3 locus differs from inactive ev-1 in that it is undermethylated, preferentially sensitive to DNase I digestion, and contains nuclease hypersensitive sites in each of its two long terminal repeats. Hypomethylation by means of exposure of cells to 5-azacytidine, a cytosine analog which cannot be methylated at the 5 position, results in the transcriptional activation of the normally inactive ev-1 as well as in the acquisition of at least one nuclease-hypersensitive site within the chromosomal region of ev-1.

Hayward et al. (1981) reported very important findings in their work with avian leukosis virus (ALV)-induced lymphomas. They found that ALV induces neoplastic disease by activating the c-myc gene, the cellular counterpart of the transforming gene of MC29 virus. As a rare event, the ALV provirus integrates adjacent to the c-myc gene causing enhanced expression of the latter through transcription started by a viral promoter. As a result, neoplastic transformation takes place. Over ten transforming genes have been identified in avian and mammalian retroviruses. All of these have their cellular counterparts in the hosts. Data of this study clearly demonstrate that a carcinogenic agent (ALV) causes neoplastic transformation by changing the expression of a cellular gene, that is normally expressed at a low level, to a higher level. This mechanism may well be of a general nature in such pathology. In fact, Klein (1981) concluded, in a recent review article on carcinogenesis, that cell transformations in cancer result from the increased expression of normal cellular genes under the influence of DNA rearrangements.

Work of Korn and Gurdon (1981) with the frog *Xenopus* showed that the normally inactive oocyte-type 5S genes in the somatic cells can be activated in the oocytes of some females when somatic nuclei are injected into them. The microenvironment in the oocytes of these females causes the activation of these dormant genes. Treatment with 0.35 M NaCl also reactivates these genes.

Rapid progress is being made these days in introducing functional foreign genes into living organisms. The gene for rabbit beta-globin has been successfully transferred into mice where it is not only functional but is also transmitted to a second generation through the germ line (Marx 1981b). This work was done by Thomas Wagner of Ohio University and Peter Hoppe of the Jackson Laboratory, in the U.S.A. More recently, Constantini and Lacy (1981) reported similar results, obtained independently, from the U.K. Bendig (1981) injected sea urchin histone genes into fertilized eggs of *Xenopus laevis* where they were expressed and persisted until at least the swimming tadpole stage. Maurer (1981) reported that treatment of pituitary cells with ergocryptine, a potent dopaminergic agonist, leads to rapid inhibition of prolactin gene transcription and that the addition of monobutyl cyclic AMP to these cells counteracts the inhibition and stimulates the prolactin gene transcription rapidly. These results demonstrate the gene regulatory basis of both the inhibition and stimulation of synthesis and secretion of prolactin, a pituitary hormone, by the hypothalamic hormone dopamine and cyclic AMP respectively, interactions which have been well known for some time. Cyclic AMP is also known to alter the transcription of some other genes. It would be well to recall that similar complex hormonal and gene regulatory interactions and mechanisms for the regulation of human faculties were proposed, in a generalized manner, in our previous theoretical research (Rahman 1980). Since then significant specific details are further substantiating our analogical generalizations.

Jonakait et al. (1980) observed that administration of reserpine to pregnant rats alters neurotransmitter phenotypic expression in the embryonic neuroblasts through the mediation of maternal glucocorticoid hormones. It was concluded that maternal hormones play an important role in regulating the development of the nervous system in the embryo. Gene regulatory processes are certain to be involved in this change. Gurney and Konishi. (1980) examined the effects of hormones on the sexual differentiation of the brain and song behavior in Zebra finches (*Poephila guttata*). In these birds, only the male sings. Morphological sex differences in neuronal substrate, consisting of distinct brain nuclei, mediating the song system, underlie this behavioral dimorphism. When female chicks were exposed to 17 beta-estradiol, their song systems became masculinized, and as adults they could be induced to sing with the administration of testosterone or 5 alpha-dihydrotestosterone. Hence hormonal influences on brain architecture and functional capacity were clearly demonstrated. The genetic basis of these changes remains to be investigated. In other experiments Shapiro et al. (1980) showed that the brain of testicular feminized rats can be masculinized by estrogens, rather than androgens, that bind to neural cytosolic estrogen receptors and direct the gene regulatory mechanism. Several papers were published in the March 20, 1981, issue of Science on sexual dimorphism which indicate the importance of gene regulation through hormonal action in this process. Rubin et al. (1981) pointed out that contemporary knowledge

indicates that human behavior is the result of complex interactions between hormonal factors and psycho-social and environmental forces. They consider the concept of nature versus nurture dichotomy to be anachronistic and suggest that in future research interactions between the above factors be investigated to arrive at objective knowledge. They analyzed several examples of specific interactions to substantiate their conclusions.

Snyder (1980) discussed the properties and interactions of various neurotransmitters. He estimated that at present there are about two dozen peptide neurotransmitter candidates and that they may represent only 10 percent or less of the total whose number is likely to exceed 200. Most of the brain peptide transmitters have been discovered by chance without any systematic effort. However, recent developments of techniques in radio-immunoassay and immunocytochemistry hold bright future for this area of research. Multiplicity of roles is indicated by the diversity of localization of these peptides throughout the brain. Beyond doubt they are involved in the gene regulatory processes which underlie various physiological manifestations. Samson and Kozlowski (1981) consider the classical distinction between neurons and endocrine cells to be illusory, because neurons can also function as endocrine cells. Several neuropeptides, besides their endocrine function, also modulate the electric activity of certain target neurons. Both the above studies regard the role of neurotransmitters in behavior to be very important.

Ross (1982) concluded on the basis of new psychiatric and physiological evidence that the emotional part of the functions of language and speech is located in the right hemisphere of the human brain. New evidence contradicts the conventionally accepted knowledge that has asserted the location of functions of language and speech entirely in the left hemisphere. These functions now appear to be the result of intricate and complex coordination between the two hemispheres. Sperry (1982) in his Nobel lecture also emphasized the existence of such complex coordination between the two hemispheres in regards to various functions. He observed that due to insufficient information the functional properties and significance of the right hemisphere have been greatly undermined thus far.

Research discoveries reviewed in the above section are significant advances towards formulating a more comprehensive theory of gene regulation in which various environmental, endocrinological, and gene regulatory factors are fully integrated. Needless to say, such developments are of great significance to the topic of this paper in which dialectical interactions between some fundamental factors of the social environment, i.e. social systems-technology complexes, socio-cultural processes that originate on that basis, and gene regulatory systems for various human faculties which participate in human perception, cognition, and behavior, are being investigated.

Discussion and Conclusions

To begin with, the following assumptions are inherent in this as well as the last paper:

1. Presence of two general, distinct, and differentially regulated (in response to the socio-cultural forces of different social systems- technology complexes) categories of genes for different human faculties (from previous paper).

These are:

(i) Genes for abstract, calculative, analytical, quantitative, power-oriented faculties.

(ii) Genes for synthetic, meditative, dialectical, spiritual-emotional, qualitative faculties.

In the present day societies there is functional overlapping as well as relative functional dominance of one category over the other. In the ensuing discussion we will refer to these as the First and Second Category, respectively.

2. Different human faculties, with their corresponding structural genes, originate from different neuron sources and different regions of the brain that are different in their gene regulatory, biochemical, and electrophysiological processes. Their differential as well as unified expression occurs in relation to and in interaction with the politico-economic, cultural and mass psychological processes of society. This is consistent with all the modern scientific evidence which shows specific regions of the central nervous system to be specialized for various sensory functions. Similarly, an increasing number of research findings demonstrate that different functions of human faculties are located in different hemispheres of the brain (e.g. Dimond and Beaumont 1974). As there are different neuron sources and different regions of the brain for different senses, so are these there for various higher human faculties.

In regards to the Third World, although great variations exist among these societies, it is possible to single out certain phenomena that are more or less general and are common to them. The following discussion focuses on some of these phenomena.

Part of the general theory of this paper is that due to particular historical, cultural, and social circumstances, characterized by short duration and low level of capitalist development and/or precapitalist socio-economic formations, in general the gene regulatory processes for human faculties in the Third World populations are in a relatively balanced and unatomized and

unfragmented state, albeit at a relatively low dialectical level. Levels of transcription of genes for various faculties are relatively balanced. Capitalist Technological Rationality (CTR), Abstract Analytical Reason, Will to Power, and associated faculties have not yet acquired overwhelming dominance over Soul or Spiritual-Emotional, Synthetic and associated faculties (or in terms of the previous paper, First Category over the Second). In fact, the latter still play a major role in the lives of most people. This is in direct contrast to the situation in the ACITS, described in the last paper (Rahman 1980), in which it was shown that as a result of complex interactions between capitalism, technology, socio-cultural and mass psychological processes, on the one hand, and gene regulatory systems, on the other, through hormonal mediation, the Second Category in general and Spiritual-Emotional and associated faculties in particular are repressed, while the First Category in general and Abstract Analytical Reason and Will to Power (components of CTR), and the associated faculties, in particular, are differentially activated on relatively high levels in the society. This type of regulation in the ACITS creates a very complex situation for the socialist and Third World societies. They are also affected by it to some extent in their interactions with it. In all types of society, there are exceptions. The methodology of this paper concentrates on the predominant and general processes and parts of society while recognizing such exceptions. Needless to say, this method is scientifically valid while investigating general phenomena and their interactions and connections.

Can the existence of human faculties be maintained and expressed harmoniously? The answer to this question lies largely in the type of social system in which development is taking place. Under capitalism it is impossible, as it is the structural processes of this very system that give rise to and develop the differential and fragmented regulation of these faculties. The only hope for restoration of the original relative harmony of these faculties in societies under developed capitalism lies in their transition to socialism. Even then it will be a very difficult and long-term process. In all the countries where foundations of socialism have been established, transition took place at a relatively less developed stage of capitalism. Hence the process of differentiation and fragmentation of faculties, characteristic of developed stages of capitalism, did not advance to such high levels in such societies, to begin with. Moreover, socialism restores the original relative harmony and balance of faculties along with restoration of the original unity of human labor and means of production, on a much higher dialectical level, by the functioning of its various social institutions and processes. However, as long as the international context is poisoned by the presence of imperialism, this balance will inevitably remain relatively low even in the socialist societies.

As far as the Third World societies are concerned, their best avenue for development, without the brutal social costs and distortion and fragmentation of faculties and consequently of human nature, is that of the non-capitalist

path. If they follow the capitalist road, there is no reason why they will also not run into the massive problems that developed capitalist societies find themselves enmeshed in today. Non-capitalist development has been practiced successfully in Mongolia and the Central Asian parts of the U.S.S.R. It was also chosen by a number of countries such as Egypt (under Jamal Abdel Nasser), Algeria, Tanzania, Syria, People's Republic of Congo, Iraq, Afghanistan (after the 1978 revolution), Libya, and People's Democratic Republic of Yemen, etc. Theory and practice of non-capitalist development have been elaborated in detail by many socialist writers. Basically this type of development involves by passing or at least cutting short the stage of capitalism as the dominant form of socio-economic formation. Then, after passing through a specific stage of development, direct transition to socialism becomes possible

One of the major reasons why spiritual-emotional factors and the subjective factor in general have relatively much more importance and power in the revolutionary transformations of Third World societies (as compared to the developed capitalist societies, where these factors have been suppressed and distorted to the extent that they now have become virtually impotent, insignificant) is precisely that these have not undergone intensified and prolonged distortions of a capitalist social system. Nowhere has this fact been more obvious than in the Iranian revolution in which spiritual-emotional factors played a major role, alongside the economic and political factors, in guaranteeing the success of revolution. The particular kind of massive spiritual strength and intensity, organized into effective revolutionary action, of the Iranian masses has kindled hopes of social progress in the hearts and minds of all the oppressed masses of the Third World, especially of those in the Moslem states. It is hard to imagine such a process occurring in the advanced alienated societies of the West.

Contemporary requirements of social progress are such that the most urgent task for the Third World, in general, is that of technological and economic development. This will inevitably affect the relative balance of faculties described above. However, this change can be a tremendous progressive breakthrough if, through rational social planning, development is achieved in a way which would guarantee the ultimate restoration of the relative balance of faculties at a higher dialectical level. Such a way is the path of non-capitalist development. Capitalism inevitably causes the fragmentation and atomization of faculties in the human mental apparatus on societal levels. One-sided, isolated, and alienated technological rationality turns into its opposite, i.e., irrationality that starts developing into sinister forms (as for example is manifested in the case of the absolutely satanic and insane development of nuclear and other weapons of mass destruction) under the advanced stages of imperialism. Eventually the social fabric of society bursts asunder under the immense pressures of this inhuman socio-psychologico-biological pathology. Evidence of this decay is already abundant in the

present-day advanced imperialist societies. By selective social suppression of the spiritual-emotional parts of the human mental apparatus, only short-term gains in material production are achieved in the abstract sense. In the long run, this exaggeration of one category of faculties (in spite of the impotent and hypocritical lip service paid to the other) leads to disaster for both categories as well as for the whole society. Efforts to substitute a formal, artificial, and mechanical “spirit”, for actual disappearance of the real spirit, result in the emergence of a grotesque creature. It is important to investigate the psychological, social, and biological mechanisms by which this pseudo-spirit is substituted for the real spirit in society.

On the other hand, exaggeration of the spiritual-emotional category on the social level, especially in its rigidified form, in contradiction with the contemporary international reality, leads to economic backwardness and stagnation and has stifling effects on the technological and scientific development that is so crucial to society’s survival and progress, under the current international conditions and relations, in which power and wealth are the determining criteria. Hence, building correct and balanced forms of both categories, consistent with the realities of human life, as well as with the objective reality, on the social level, is the foremost task, not only for the Third World societies, but also for humans in general. It follows from the above discussion that while one-sided social exaggeration of the First Category, under capitalism, leads to suppression, distortion, and mutilation of the Second Category, and disastrous and macabre irrationality in the long run, one-sided exaggeration of rigidified forms of the Second Category terminates in a dead end, retarding social and material development and suppressing the development of the First Category of faculties.

Socialism offers a practical, real, and grand synthesis of the two categories on the social level by providing a radically new social and material basis for the society which generates radically different mass psychological, cultural, social, and epigenetic processes in the human populations. The original relative balance and integrated expression of faculties is restored at a much higher level by a living, real dialectical process. Synthesis is achieved both in social practice, in living transforming action, as well as by conscious social planning in the interest of the whole society and for the all-round, well-integrated development of its individual members. Here dialectical rationality comes into full play dealing effectively and integratively with all the various contradictions that constitute the contents of life. Eventually the role of subjective factor will be relatively greatly enhanced under the conditions of developed socialism and communism.

One-sided regulation in favor of the Second Category, although futile for the economic and technical progress of particular societies, does not create the mortal danger to the whole of mankind that is characteristic of the one-sided regulation of the First Category, characteristic of the ACITS. Such extreme

dichotomy in the regulation of the two categories did not come into being until the development and consolidation of capitalism. This dichotomy has progressed hand in hand with the progressive development of capitalism until it has achieved its present stage, at which the First Category has gained almost total control and dominance over the Second, in overwhelming majorities of the populations of ACITS. The level of transcription of genes for the First Category has been becoming progressively higher while that of those for the Second Category progressively lower. Relative degrees of transcription, hence, play a most important role in the gene regulatory dialectic of human faculties, which is a result of the politico-economic and socio-cultural processes of society, and also reinforces them. Before the class-divided societies, regulation of the two categories was, most probably, relatively balanced in majority of the populations, with a high degree of differential regulation in favor of one or the other category existing only in scattered groups or individuals. The early balance started eroding with the emergence and development of divisions of classes and labor, under different class-divided systems, reaching the current extreme levels of imbalances, under ACITS. Now extreme differential regulation in favor of the First Category is the order of the day in the majority of the populations in these societies, with relative balanced regulation or that in favor of the Second Category restricted to small scattered groups or individuals. Differential regulation of the First Category brought great technical, scientific, and economic progress for the above societies, which effectively camouflaged the negative consequences of the suppression of the Second Category. However, these negative consequences have now grown to colossal proportions, have torn out of the camouflage and are now ready to burst into the greatest explosions of history. This can only be reversed by recognition of their existence and massive, dedicated, and organized action on a social and global level.

The analogy between the differential regulation of genetic systems for human faculties under the socio-cultural and selective forces and pressures of social system-technology complexes being discussed here and gene regulatory changes in foxes under domestication and selective forces and pressures, reported by Belyaev et al. (1981b) and described in the review of literature above, is clear. Gene regulatory systems for faculties in humans are not immune to the pressures of socio-economic-political and cultural forces. On the contrary, as is already obvious in regards to mass psychology and behavior, these systems in humans are vulnerable, to an appalling degree, to these domestication forces and pressures, under the control of highly organized, well-defined, well-differentiated, and powerful institutions and processes, characteristic of contemporary socio-economic formations. Needless to say, mass psychology, behavior, and gene regulatory processes for faculties differ radically under the impact of different types of social system-technology complexes. While the above forces condition human nature in its various dimensions in specific forms under these complexes,

organized and conscious practical activity of humans also modifies these forces in its turn. Great transformations in the nature of these forces take place during social revolutions. These changes are then reflected in human nature. Modifications in certain gene regulatory processes of human faculties constitute the most important core of such changes.

From the above discussion it should become clear that humans are the most dialectical creatures of all. In them different forces and capacities exist that can either differentiate into mutually alienated categories and turn into warring opposites, or these can be in a relatively harmonious and complementary balance, at various levels, depending upon different social system-technology complexes. Differentiation may be of a very high degree, one-sided and schizophrenic, as under advanced capitalism, or it may be at a relatively low level, as in the Third World Societies, or it may be at a relatively high degree, but balanced at the level of dialectical unity, as under socialism.

At present, advanced U.S. imperialism is undergoing the deepest and most dangerous general crisis of its history. Morbid insanity and hysterical militarism have gripped its leaders, while the majority of the general population is either complacent or hypocritical, apathetic, and ignorant. This development was logically predictable on the basis of understanding and knowledge of the structural processes of imperialism a long time ago. It would have been surprising if it had been otherwise. Yet it is not uncommon to find good-hearted, disillusioned men and women utterly shocked and surprised at the recent naked manifestations of the absolute monstrosity of imperialism. Imperialism now has pushed the world into spending \$500,000 million or roughly 6 percent of the total world output annually on war preparations and the military (Stockholm International Peace Research Institute (SIPRI) Yearbook, 1980, p. xvii)! The U.S. is planning to spend \$1,500,000 million on the military between 1981 and 1985!! Pre-election promises of Reagan's program by his staff indicated a 1985 total of approximately \$400,000 million for "defense" (Perlo 1981b). Perlo (1981a), on the basis of SIPRI figures, estimated that U.S. military spending in 1977 was \$100,900 million as compared to the U.S.S.R. \$50,200 million for the same year. Thus U.S. spending was 93 percent more than that of the U.S.S.R. In 1979 this difference was 67 percent in favor of the U.S. At the same time, the North Atlantic Treaty Organization's (NATO) spending exceeded that of the Warsaw Treaty Organization's by 169 percent during 1977. Also based on SIPRI statistics, the World Peace Council calculated that between 1968 and 1977 NATO's military budget was \$1,255,600 million, China's \$260,600 million, and the Warsaw Pact's \$712,600 million at 1973 constant value dollars. Hence, in ten years the Warsaw Pact spent only 57 percent of the military budget of NATO and 47 percent of that of the combined opposing forces of NATO and China. More recent figures have followed a similar trend. The Warsaw Pact forces amount to 90 percent of the NATO forces and to 50 percent of the combined opposing forces of NATO and China in manpower (Pasti 1981, pp.

53,55). Some good information is provided by General Nino Pasti (1981), a retired high-ranking NATO general, and by Major General Gert Bastian (1981) of the Federal Republic of Germany's Bundeswehr, who resigned his post in protest against the renewed demonic nuclear arms race started by the U.S. in the NATO countries. Both the above men have since dedicated themselves to peace in the world and have effectively exposed the lies, distortions, and demonic plots of the U.S. and its imperialist allies for the extermination of life on earth. Some other knowledgeable high-ranking military officers from the Western European countries have also openly spoken out against the current U.S.-initiated nuclear hysteria (Peace Courier Oct. 1981). According to the data of the Organization for Economic Cooperation and Development (based in Paris), 63 percent of the research and development activity of a total of 700,000 scientists, engineers and technicians working in the U.S. during 1967 was on behalf of the military (Melman 1970, p. 187). This percentage, as well as huge expenditures on military research and development, have obviously increased since then. Justifications are invented for these criminal expenditures by fabrications of various non-existing Soviet military superiorities, ad nauseum. Manipulations of figures, distortions of data, and even bending of statistical techniques for this purpose by the C.I.A. are well documented facts (for example, in the analysis of the relatively neutral Stockholm International Peace Research Institute's 1979 and 1980 Yearbooks and in the writings of Victor Perlo 1980 a, b). Due to limitations of space, we will not go into details of these distortions and fabrications. The above sources are recommended for a factual knowledge of this matter. It does not take more than a meager amount of common sense to conclude from all the available evidence that figures for Soviet expenditures, frequently cited by U.S. authorities, are deliberate fabrications invented to deceive public opinion and to justify their own monstrous expenditures. One of the major real reasons for these incredible expenditures, however, is the fabulous amounts of profits extracted by the monopolies of the military-industrial complex in the U.S. According to data from the U.S. Bureau of Financial Accounting, the rate of profit in manufacturing industry is around 20 percent. However, out of 169 monopolies of the military-industrial complex that were investigated by one of the U.S. Senate subcommittees, 94 receive about 50 percent profit, 49 more than 100 percent, 22 more than 200 percent, 3 more than 500 percent, and 1 receives about 2,000 percent profit (Kozlov 1977, p. 411)! Need it be pointed out that the Pentagon and the U.S. government in general are not only dominated by but are saturated with the representatives of these monopolies? Again it is the high altar of the new God of Western Civilization, Capital, on which the very survival of human and other species is being sacrificed. Is it possible to imagine anything more morbid? Corporate news media and even the scientific journals that are otherwise objective commit constant crimes against the intelligence and security of people as well as against factual reality in these matters. One is astounded at the level of illogical feeble-mindedness, hypocrisy, and mechanically disguised subjectivism and prejudice under the cover of "scientific objectivity" in the writings of such

otherwise respectable and prestigious scientific journals as Science and Nature, whenever they condescend to write about these problems. They become totally unscientific.

The whole history of the development and deployment of nuclear weapons is full of sincere, concrete, and straightforward efforts and proposals of the U.S.S.R. to reduce and stop this diabolical madness. As is well documented, it is U.S. imperialism which is responsible for first bringing into this world almost all the major nuclear weapon systems and devices. The U.S.S.R. was forced to balance these only later and sometimes after many years of interval. The following table demonstrates this fact clearly:

U.S. ARMS BUILDUP AND SOVIET RESPONSE

	Date Introduced	
WEAPONS SYSTEM	USA	USSR
Atomic bomb	1945	1949
Hydrogen bomb	1953	1954
Long-range bomber	1953	1957
Medium-range missiles	1953	1959
Tactical nuclear weapons	1955	1956
Intercontinental ballistic missiles (ICBMs)	1955	1957
Nuclear submarines	1956	1962
Submarine-launched ballistic missiles	1959	1968
Anti-ballistic missiles (ABMs)	1960	1961
Solid fueled ICBMs	1962	1969
Multiple re-entry vehicles(MRVs)	1964	1972
Multiple individually targetable re-entry vehicles (MIRVs)	1970	1975
Cruise missiles	1976	—
Maneuverable re-entry vehicles (MARVs)	1985	—

(Workers World, Vol. 23, No. 48, Nov. 27, 1981, p. 5)

The U.S. has stubbornly refused to negotiate for real nuclear disarmaments or limitations since the beginning in 1945. On the contrary, it has made the threat of global nuclear mass murders the very foundation of its foreign policy and conduct of international relations! The human mind is incapable of imagining a greater evil, a greater monstrosity. No words can describe it. Yet it is the fundamental reality of today's world. According to a United Nations report, Nuclear Weapons: Report of the Secretary General of the UN (1980, p. 27, Table 1), the total number of U.S. nuclear warheads is estimated to be between 25,000 and 33,000 while those of the U.S.S.R between 11,000 and 15,000. Nuclear warheads of the U.S.S.R. are estimated to carry a higher explosive load. Overall U.S. technological advantages in the various nuclear

weapon systems as well as their aggressive deployment for offensive purposes is well reported in various publications (e.g. Pasti 1981; Perlo 1980 a; SIPRI Yearbooks; Szymanski 1979; among others). Whatever small gains in nuclear arms limitations were forced upon imperialism by the growing strength of the socialist community and the peace movements of the world's peoples, fascist forces are now trying to wipe them out at this berserk stage of the development of capitalism. In response to growing public awareness in Western Europe of the actual role of the U.S. in the global nuclear morbidity, Reagan again tried to deceive the people by making dishonest and hideous public statements, insulting peoples' common sense and peace sentiments, in regards to nuclear arms reductions in Europe. In essence his proposition asked the U.S.S.R. to disarm unilaterally in Europe without any reductions in the existing already much larger nuclear arsenal of the U.S., in exchange for the possibility of foregoing deployment of new U.S. weapons there! Is a more absurd and cynical proposition possible? This is being brandished as the "Zero Option in Europe" and "Banning the Nuclear Weapons in Europe" by the corporate news media. What can be more deliberately deceptive than this with total disregard for any kind of objectivity or facts? The history of corporate news media in the U.S. is full of this kind of examples of outright transparent lies, deceptions and distortions. National solipsism in the U.S. has reached an extremely dangerous level under the impact of various factors, one of the major ones being the highly organized and efficient disinformation by the corporate news media. Some of the excellent sources for obtaining objective information about the history of nuclear armaments and disarmaments have been included in the list of references and the interested reader is urged to use them (.Alexandrov 1981; Arbatov 1981; Bastian 1981; Brezhnev 1981 a,b; Divine 1978; Korionov 1975; Kuznetsov 1981; Levonov 1981; Pasti 1981; Perlo 1980 a,b; Ponomaryov 1974; Proektor 1981; Ustinov 1981; Vishnevsky 1981; Yefremov 1979; Zagladin 1981).

Barbarism has not disappeared at all in the modern world. On the contrary, under the guise of "development", it has become a colossus, merely changing to the most dangerous and efficient technical form. Real history is now exposing this with great explosive force. One thing that history has constantly hammered at mankind is that cultural, spiritual, intellectual, and emotional development does not automatically or directly flow out of technical, scientific, and economic development. Their interactions are extremely complex and the former cannot be deduced directly from the latter. The latter only furnish the potential basis for general development. However, it is only through a progressive social system that general development can occur in all these areas. In the absence of a progressive social system for prolonged periods of time, people become mutilated in the former parts of their being, no matter how advanced they are in the latter in the abstract. In fact, such abstract and one-sided advancement, as we have shown, has devastating effects on the former categories of human reality. If one is capable of using dialectical insight, one cannot fail to see that this mutilation in the former categories will

eventually also lead to structural deviations in the latter and finally to a general collapse. Such a moment is approaching fast in U.S. society. No amount of theoretical and linguistic maneuvering can get around this real, fundamental contradiction of contemporary capitalist-imperialist society. It is important to observe that this basic distortion, which is in fact a law of the development of capitalism, also causes a vicious cycle of interactions and reactions in the international arena, an aspect alluded to, briefly, above. Other societies are also drawn into this developmental schizophrenia to varying degrees, and the result is an internationalization of the above distortion. As far as the prospects of truly rational (in the integrated sense) as well as humanistic science and technology are concerned, these will only become possible after the final defeat and collapse of capitalist-imperialist forms of gigantic and monstrously destructive forces of science and technology. In the immediate future, science and technology in the socialist and Third World societies will be forced to have much in common with that of capitalist-imperialist societies, besides important differences in their nature, direction, and application between them. Former societies in the transitory period will be forced to maintain a large military component in their scientific and technological programs in response to the hysterical military buildup by an imperialism gone berserk beyond the outer boundaries of imagination.

Institution of rational socio-cultural structures and processes under a non-capitalist form of state, which involves mobilization of masses of people by organization and planning in the interests of the whole society rather than of a minority of rich, will enhance the genetic regulation of appropriate human faculties on social levels. This change is analogous to the research discoveries of Belyaev et al. (1981a, b) which demonstrate that domestication pressures (involving changes in the cultural forces and processes) can bring about heritable gene regulatory changes in mice and foxes. These socio-culturally induced changes will then be reflected in improvements in the material-technical basis of society which in its turn will have a dialectically regulatory influence on the enhancement of the above socio-cultural processes as well as of the expression of the appropriate categories and combinations of gene regulatory processes. Once started on the social level, this process will be expressed as a specific dialectic between the objective and subjective forces of development in which both will mutually influence and interpenetrate each other. The non-capitalist way will ensure the mobilization of human and natural resources on a mass scale, significantly reduce the time required for reaching a given level of development, and will pave the way for eventual transition to socialism, without going through the extremely ambiguous and destructive phases of brutal capitalism, hence without extreme distortions and one-sided and alienated socio-cultural and gene regulatory processes of human faculties. Theoretically, whatever level the transcription of genes for the First Category achieves will be relatively balanced by the transcription of genes for the Second Category. However, due to the aforementioned internationalization of certain distortions, even if

the first category is regulated on a somewhat higher level, subsequently under socialism, relative balance will be restored between the two on a much higher dialectical level, as a result of the operation of its particular social institutions and processes. On the other hand, the capitalist road to development will guarantee the one-sided socio-cultural and genetic regulation in favor of the First Category that eventually overwhelms and suffocates the Second Category, making it extremely difficult, if not impossible, to restore the original relative balance. As far as the availability of natural resources for development is concerned, many Third World countries have been and still are very rich in them, in spite of centuries of incredible plunder by colonialism and neocolonialism.

Establishment of the above processes will organically speed up the technological and scientific progress in the Third World by releasing the necessary mental and physical forces on the social levels and will enable them to utilize their own resources, instead of these being plundered and exhausted ruthlessly by the transnational and multinational corporations of imperialism. This process will be further facilitated by the technical assistance from developed socialist societies, which have tremendous experience in industrialization over a relatively short period of time. As far as the western capitalist countries are concerned, historically they have endeavored to their best ability to thwart the industrial development of the Third World countries and to direct it in their own selfish interests, to structure the latter's economies as suppliers of raw materials for laughably low prices, and to make them dependent for manufactured goods sold at exorbitant prices. It is only recently that some Third World countries have been relatively successful in obtaining somewhat reasonable prices for their precious raw materials, e.g. the Organization of Petroleum Exporting Countries (OPEC) for their oil, which has caused such a hysteria in the western countries. However, successful imperialist maneuvering has recycled most of the increased revenues back from most of the oil producing countries. The trading position of other exporters of raw materials has been getting worse by monopoly price fixing and other measures. Colonialism and neocolonialism, by thwarting the natural development of indigenous science, technology, and industry, have had a suppressive effect on the organic transformation of socio-cultural and corresponding gene regulatory processes in the Third World societies. Combined with the predominance of supernatural and mystical traditions in the native cultures, this has had drastically adverse effects on the development of science and technology there. Many Third World countries are now successfully trying to overcome the brutal hardships and their undeveloped economic status, imposed on them by the colonial and neocolonial history. However, imperialism is trying to adapt to the new situation and knows no moral or rational scruples in its attempts to retard their social progress.

May one ask the people who call themselves “Christians” where in their religion is such naked evil, such colossal enmity towards mankind, all justice, and goodness sanctioned? True Christianity, like many other humanistic religions, cannot but be revolted against such diabolical and anti-human system as imperialism. However, most organized religious institutions have become thoroughly corrupted and servile to Capital, in their long history under capitalism, in the developed capitalists societies. Important modifications in their roles have caused them to be little more than enterprises that perform solipsistic, mechanical, and formal religious exercises in abstraction, without any real spiritual depth or integrity, under the ultimate control of omnipotent Capital. Subconsciously they also recognize the new God. However, this is a transitory period, and formal lip service to the old God is still considered necessary. Aberrations like the “Moral Majority” are the logical outcome of this sort of development. As double-think and double-talk have become customary in the advanced alienated society, it perhaps does not cause revulsion in most people that a movement, which in essence advocates militarism, colonialism, and nuclear armaments, and is allied with the most fascist and reactionary forces in the country, dares to call itself the “Moral Majority” at the same time. Although corruption and perversion of religions, under the impact of political and economic power, has not been an uncommon incidence in the history of class-divided societies, it has developed to new heights and has acquired new features under the conditions of developed capitalism. If the basic principles of any religion in a given society do not include militant opposition to imperialism, under the contemporary historical conditions, in practice it degenerates into an empty solipsism in that society and becomes riddled, more than ever, with all sorts of acute and irresolvable contradictions, no matter how humanistic it may claim to be in theory. As noted above, in the advanced alienated society, there are powerful religious movements that not only do not oppose militarist imperialism but actually condone it and work feverishly for it! It is also no secret to knowledgeable people that in the past most of the missionaries have worked hand in glove with colonialism in the colonized countries under various pretexts, rationalizations, and disguises. In short, the position of religion in the developed capitalist societies, in general, is extremely grotesque today and is characterized by slavery to Capital, in spite of all the solipsistic noise about the abstract old God, the human “soul”, “spirit”, “goodness”, “love”, etc. ad nauseum. In reality, extreme forms of such “religion” play a profoundly anti-spiritual role in the service of real demonic powers. As stated earlier, existence of exceptions to these generalizations is recognized. However, we are focusing on the main forces and trends of society in this paper.

At present, history is calling upon the American people in the loudest call of all times to take progressive stands on international and national issues, to modify their long antiquated political superstructure and to rise up against the nuclear armaments and other weapons of mass destruction before it is too

late. Otherwise the threat of nuclear extermination that they have thrown at other peoples by putting the buttons under the control of Dr. Strangeloves will boomerang. It will be of no use to realize in the moment of nuclear evaporation that after all the destructive power of nuclear weapons does not discriminate between Americans, Europeans, peoples of the Third World, communists and capitalists. The days of imperialism are numbered. History will be ruthless against people who stand in its way, no matter for what reason, be it the craving for domination, for resources of other peoples, infantile narcissism, anti-communism, ignorance or whatever. Every thinking person by now must have realized that the diabolical role of imperialism in the international and national affairs is not an accident, not merely a result of the erroneous policies of certain individuals, but is the organic outcome of its very structural foundations. By progressive changes in the system, masses of people in the U.S. can only gain. For example, hundreds of billions of dollars now spent annually on non-productive military war machinery would be diverted towards raising the people's standard of living. It is only the super-rich and overbloated of the big monopolies who will lose parts of their fabulous wealth extracted from the toiling masses of the world by every possible means, frequently most evil, criminal and brutal. For example, it has been estimated that the private capital of just three super-rich families in the U.S., the Rockefellers, DuPonts, and Mellons exceeds the annual pay of 25 million American workers (Kozlov 1977, p. 128). According to Domhoff (1967, 1979) who has conducted several empirical and theoretical studies on the capitalist class in the U.S., the distribution of wealth in the U.S. is extremely distorted and has been so constantly throughout the nineteenth and twentieth centuries. Interested readers will find some important information about the structure and methods of the U.S. ruling class in Domhoff's works. For selected years between 1953 and 1969, the top one percent of the population in the U.S. has owned between 25 percent and 30 percent of all privately held material wealth, including 50 to 86 percent of all corporate stock (Turner and Starnes 1976, p. 39, Table 13). Moreover, one study showed that the richest 0.5 percent have consistently held 22.0 percent of personal wealth in the U.S. over the last thirty years. Another study estimated that the top 0.5 percent of families held an even higher percentage of the wealth, 25.8 percent (Turner and Starnes 1976, pp. 38 and 22, respectively). Smith (1968) reported that in 1958 the top 1.5 percent of wealth holders, wealthy to begin with, also received 24 percent of the total national income (including that from capital gains) in the U.S. for that year.

The above estimates are results of conservative and extensive empirical studies and are based upon numerous valuable sources of government and other data. Presently the fabulous wealth of the tiny minority of big capitalists in the U.S. is growing even further while tens of millions of people are being impoverished and millions are unemployed as a result of the policies of the most unscrupulous representatives of the monopolies that now dominate the government. The government admits to 9 million unemployed. However, the

actual number is estimated to be 20 million (Workers World Dec. 11, 1981, p. 3). Faced with such naked reality of extreme class differences in the U.S., in which the imperialist ruling class, consisting of a very small minority, enriches itself with unlimited predatory greed by excluding the overwhelming majority of the population, both at home and abroad, from the ownership of the means of production, and afraid of the struggle of the masses of people for the elimination of this colossal parasitism, corporate powers try to blur the reality by every possible means. One of the methods has been to recruit a whole army of puppet “sociologists”, “psychologists”, and “economists”, who go to bizarre lengths and commit shameless crimes against common sense, scientific objectivity, and people in general, in trying to deny or minimize the above reality. Many of them are so blinded by the glitter of the bribes that they even deny the reality of the existence of the ruling class! Such corruption of supposedly “educated” experts showers powerful blows against the illusions of abstract humanism. This process has played a major role in the retardation and distortion of knowledge in the social sciences, which are undergoing profound crisis in all the capitalist-imperialist societies at present, to varying degrees. On the other hand, a very small number of American authors and researchers in social sciences is still holding on to scientific objectivity and intellectual integrity resolutely against great odds, and they are publishing important and commendable works which contradict the vast sea of distortions and literary diarrhea that the above army of puppet writers spews out incessantly. It is evident that the same monster masters, at the helm of the imperialist ship of doomsday, that are now plotting the indiscriminate nuclear genocide of hundreds of millions of men, women, and children as well as of other forms of life, which evolved as a result of tens of millions of years of evolution, are also ultimately responsible for the mass spiritual devastation, in populations under their direct and indirect control, on various levels, including the gene regulatory level. Moreover, they create totally unnecessary, massive, and extremely dangerous animosities and conflicts between various peoples of the world in the satanic pursuit of their insatiable greed for ever higher profits and power. They use people as fodder in their war machines and power apparatuses. Such is the nature of the objective basis of the conflict between imperialism, on the one hand, and the Third World and socialist countries, on the other. This conflict is reflected on the objective level of morality as that between universal evil and universal good, with imperialism providing the material foundations of the former and socialism of the latter. To maintain pretensions of neutrality in this conflict is not only against all ethics and scientific objectivity, but is lethal to human nature itself.

State-monopoly capitalism is now, as it has before, trying to substitute international conflicts for the class battles. Unfortunately, so far, they have been generally successful in the U.S., in their maneuvers, due to an astounding degree of political ignorance and brainwashing of the great majority of the population here. Recently the aforementioned Major General

Gert Bastian addressed only two hundred people at Columbia University against the renewed nuclear arms race (Daily World Dec. 5, 1981, p. 3). Yet one is struck by the hordes of thousands of American youth stampeding towards the concerts of rock stars who have openly professed following the Devil. One cannot help wondering what can be in the heads of these thousands. While peoples in other countries are demonstrating in the streets in record numbers, reflecting the real danger of nuclear holocaust, the reaction of Americans, so far, has not been commensurate with the level of danger or the burden of responsibility that is incumbent upon them in view of the demonic nature of their state. In a conference of psychologists, psychiatrists, and other physicians, sponsored by the Harvard Medical School recently, attempts were made to analyze why Americans are so numb to the threat of nuclear war (Portland Oregonian Dec. 13, 1981, p. A22). Although this problem is truly of great significance, not only for the U.S., but for all the world, the participants failed to come up with any significant insights or propositions. Extremely superficial and narrow statements were made that failed to touch not only the heart of the problem but even its outer boundaries.

The question naturally arises why the professional community, which is entrusted with the mental and physical problems of society and its members, is so ignorant and shallow in its analyses of such a major problem of global dimensions. Lies and deceptions of imperialist corporations and their government are being shattered to pieces all over the world with special rapidity these days. Objective events are doing the same job here, although the level of somnambulism is still very high in the population. People are being forced to wake up by the sheer force of the antagonist events, basically economic warfare and threat of nuclear annihilation, unleashed by the recent exacerbation of the contradictions of advanced capitalism, in spite of their efforts to revert back to the state of conditioned somnambulism, which is originally produced by systematic disinformation forces of the state-monopoly capitalist ruling class. However, it is only logical to assume that even the American public must have a threshold point in this regard. The rapid buildup of the anti-nuclear movement is a clear indication of a positive shift in people's awareness in this regard. However, the time is running out in which they may be able to effectively stop the greatest crime against all life in history.

Knowledge of one's real enemy has never had greater significance in human affairs than at the present time. It is hoped that this research paper, besides explicating the complex contemporary social, cultural, political-economic, and gene regulatory processes in their integrated structure, will also help in the correct identification of forces underlying these processes. At present in the advanced alienated society, in which reality has far surpassed the fictions of Dr. Strangelove and Brave New World, there do not seem to be any mass forces organized and strong enough and concerned and informed enough to be able to stop the sinister rush towards the ultimate abyss through the Third

World War and/or destruction of the environment and its life-supporting systems. However, history is also full of surprises, through the operation of various combinations of its objective laws which, in interaction with particular socio-historical situations, may, under certain circumstances, supersede the empirical observations, transforming them in the process. A deeper logic may still assert itself. On the other hand, imperialism is doing all it can to prevent the emergence and development of such logic.

References

Alexandrov, I. 1981. Concerning the policy of the new U.S. administration. *Reprints from the Soviet Press* XXXII (No. 8): 18-27. New York: Compass Publications.

Amin, S. 1976 a. *Unequal Development*. New York and London: Monthly Review Press.

Amin, S. 1976 b. *Foreword to Lire le Capitalisme* (M. Beaud et al.). Paris: Anthropos.

Arbatov, A. 1981. The strategy of nuclear madness. *Reprints from the Soviet Press* XXXIII (No. 1): 5-21. New York: Compass Publications.

Bastian, G. 1981. *Nuclear War in Europe: A Bundeswehr General's Attitude*. Helsinki: World Peace Council.

Belyaev, D. K., Ruvinsky, A. O., & Borodin, P. M. 1981a. Inheritance of alternative states of the fused gene in mice. *J. Heredity* 72: 107-112.

Belyaev, D. K., Ruvinsky, A. O., & Trut, L. N. 1981b. Inherited activation-inactivation of the star gene in foxes: Its bearing on the problem of domestication. *J. Heredity* 72: 267-274.

Benacerraf, B. 1981. Role of MHC gene products in immune regulation. *Science* 212: 1229-1238.

Bendig, M. M. 1981. Persistence and expression of histone genes injected into *Xenopus* eggs in early development. *Nature* 292: 65-67.

Brezhnev, L. I. 1981a. *Peace Program for the 80s*. From the report delivered at the 26th Congress of the CPSU. Moscow: Novosti Press Agency Publishing House.

Brezhnev, L. I. 1981b. World peace is the supreme goal. *Reprints from the Soviet Press* XXXIII (No. 2): 5-9. New York: Compass Publications.

- Conover, D. O. and Kynard, B. E. 1981. Environmental sex determination; Interaction of temperature and genotype in a fish. *Science* 213: 577-579.
- Constantini, F. & Lacy, E. 1981. Introduction of a rabbit beta globin gene into the mouse germ line. *Nature* 294: 92-94.
- Davidson, E. H. & Britten, R. J. 1979. Regulation of gene expression: Possible role of repetitive sequences. *Science* 204: 1052-1059.
- Dimond, S. J. & Beaumont, J. G. 1974. *Hemispheric Functions in the Human Brain*. New York: John Wiley and Sons, Inc.
- Divine, R. A. 1978. *Blowing on the Wind: The Nuclear Test Ban Debate. 1954-1960*. New York: Oxford University Press.
- Domhoff, G. W. 1967. *Who Rules America*. New Jersey: Prentice-Hall, Inc.
- Domboff, G. W. 1979. *The Powers That Be: Processes of Ruling Class Domination in America*. New York: Vintage Books.
- Engelhardt, V. A. (1981). Science, technology, and humanism. *The Soviet Review* XXII (No. 3): 50-67. New York: M. E. Sharpe, Inc.
- Fanon, F. 1963. *The Wretched of the Earth*. New York: Grove Press, Inc.
- Giap, V. N. 1974. *People's War, People's Army*. Hanoi: Foreign Languages Publishing House.
- Gorczynski, R. M. & Steele, E. J. 1981. Simultaneous yet independent inheritance of somatically acquired tolerance to two distinct H-2 antigenic haplotype determinants in mice. *Nature* 289: 678-681.
- Groudine, M., Eisenman, R. & Weintraub, H. 1981. Chromatic structure of endogenous retroviral genes and activation by an inhibitor of DNA methylation. *Nature* 292: 311-317.
- Gurney, M. E. & Konishi, M. 1980. Hormone-induced sexual differentiation of brain and behavior in zebra finches. *Science* 208: 1380-1382.
- Hayward, W. S., Neel, B. G. & Astrin, S. M. 1981. Activation of a cellular onc gene by promoter insertion in ALV-induced lymphoid leukemia. *Nature* 290: 475-479.
- Jonakait, G. M., Bohn, M. C. & Black, I. B. 1980. Maternal glucocorticoid hormones influence neurotransmitter phenotypic expression in embryos. *Science* 210: 551-553.

Khlebnikov, P. (1981). *The United States: The Prop of Reactionary Regimes. The Soviet Viewpoint*. Moscow: Novosti Press Agency Publishing House.

Kirsch, I. R., Ravetch, J. V., Kwan, S. P., Max, E. E., Ney, R. L. & Leder, P. 1981. Multiple immunoglobulin switch region homologies outside the heavy chain constant region locus. *Nature* 293: 585-587.

Klein, G. 1981. The role of gene dosage and genetic transpositions in carcinogenesis. *Nature* 294: 313-318.

Korionov, V. 1975. *The Policy of Peaceful Coexistence in Action*. Moscow, Progress Publishers.

Korn, L. J. & Gurdon, J. B. 1981. The reactivation of developmentally inert 5S genes in somatic nuclei injected into *Xenopus* oocytes. *Nature* 289: 461-465.

Kozlov, G. A. 1977. *Political Economy: Capitalism*. Moscow: Progress Publishers.

Kuznetsov, V. 1981. *The Soviet Union Proposes... The International Situation and Soviet Peace Initiatives*. Moscow: Novosti Press Agency Publishing House.

Lenin, V. I. 1916 [1952]. Imperialism, the highest stage of capitalism. *Selected Works* (English Ed.) Vol. 1, Part 2. Moscow: Foreign Languages Publishing House.

Levings III, C. S., Kim, B. D., Pring, D. R., Conde, M. F., Mans, R. J., Laughnan, J. R. & Gabay-Laughnan, S. J. 1980. Cytoplasmic reversion of cms-S in maize: Association with a transpositional event. *Science* 209: 1021-1023.

Levonov, V. 1981. In the Geneva Disarmament Committee. *Reprints from the Soviet Press XXXIII* (No. 2): 58-62. New York: Compass Publications.

Lewin, R. 1981a. Research News: Biggest challenge since the double helix. *Science* 212: 28-32.

Lewin, R. 1981b. Research News: How conversational are genes? *Science* 212: 313-315.

Lewin, R. 1981c. Research News: Seeds of change in embryonic development. *Science* 214: 42-44.

Lewin, R. 1981d. Research News: Evolutionary history written in globin genes. *Science* 214: 426-429.

- Marx, J. L. 1981a. Research News: A movable feast in the eukaryotic genome. *Science* 211: 153-155.
- Marx, J. L. 1981b. Research News: Globin gene transferred. *Science* 213: 1488.
- Maurer, R. A. 1981. Transcriptional regulation of the prolactin gene by ergocryptine and cyclic AMP. *Nature* 294: 94-97.
- Melman, S. 1970. Pentagon Capitalism: *The Political Economy of War*. New York, St. Louis, San Francisco, Toronto: McGraw-Hill Book Company.
- Nuclear Weapons.: Report of the Secretary General of the United Nations* 1980. Brookline: Autumn Press, Inc.
- Pasti, N. 1981. *Euro-Missiles and the General Balance of NATO and Warsaw Pact Forces*. Helsinki: World Peace Council.
- Peace Courier. 1981. *Former NATO generals on arms race and U.S. superiority plans*. Vol. 12, 6-7 (October, 1981). Helsinki: World Peace Council.
- Perlo, V. 1980 a. C.I.A. numbers game: The myth of Soviet superiority. *The Nation* 231(7): 201 & 214-218.
- Perlo, V. 1980 b. *History's Biggest Rip-Off: The Arms Budget Threat to Your Livelihood and Life*. New York: New Outlook Publishers and Distributors, Inc.
- Ponomaryov, B., Gromyko, A. & Khvostov, V. 1974. *History of Soviet Foreign Policy 1945-1970*. Moscow: Progress Publishers.
- Proektor, D. 1981. *The Choice Facing Europe*. Moscow: Novosti Press Agency Publishing House.
- Rahman, F. 1980. Effects of the contemporary technological model on the genetic regulation of inner human faculties. *J. Social Biol. Struct.* 3: 375-389.
- Rosenfeld, M. G., Amara, S. G., Roos, B. A., Ong, E. S. & Evans, R. M. 1981. Altered expression of the calcitonin gene associated with RNA polymorphism. *Nature* 290: 63-65.
- Ross, E. D. 1982. The divided self. *The Sciences* 22: 8-12.
- Rubin, R. T., Reinisch, J. M. & Haskett, R. F. 1981. Postnatal gonadal steroid effects on human behavior. *Science* 211: 1318-1324.

Samson, W. K. & Kozlowski, G. P. 1981. Nerve cells that double as endocrine cells. *BioScience* 31: 445-448.

Shapiro, B. H., Levine, D. C. & Adler, N. T. 1980. The testicular feminized rat: A naturally occurring model of androgen independent brain masculinization. *Science* 209: 418-420.

Shii, C. T., Mok, M. C., Temple, S. R. & Mok, D. W. S. 1980. Expression of developmental abnormalities in hybrids of *Phaseolus vulgaris* L. *J. Heredity* 71: 219-222.

Smith, J. D. 1968. An estimate of the income of the very rich. *Papers in Quantitative Economics*. University of Kansas Press.

Snyder, S. H. 1980. Brain peptides as neurotransmitters. *Science* 209: 976-983.

Sperry, R. 1982. Some effects of disconnecting the cerebral hemispheres. *Science* 217: 1223-1226.

Steele, E. J. 1979. *Somatic Selection and Adaptive Evolution: On the Inheritance of Acquired Characters*. Toronto: Williams and Wallace.

Steele, E. J. 1981. Lamarck and immunity: A conflict resolved. *New Scientist* 90: 360-361.

Stockholm International Peace Research Institute. 1976. The end of the Second Indo-China War (1961-1975). *SIPRI Yearbook: World Armaments and Disarmaments*. Uppsala: Almqvist and Wiksell International; Cambridge, London: MIT Press. pp. 48-53.

Stockholm International Peace Research Institute. 1977. IV. Ecological consequences of the Second Indochina War. *SIPRI Yearbook: World Armaments and Disarmaments*. Uppsala: Almqvist and Wiksell International; Cambridge, London: MIT Press. pp. 198-199.

Stockholm International Peace Research Institute. 1979. III. The misuse of military expenditure figures: The presentation of estimates of Soviet military expenditures. *SIPRI Yearbook: World Armaments and Disarmaments*. London: Taylor and Francis, Ltd.; New York: Crane, Russak and Co., Inc. pp. 27-32.

Stockholm International Peace Research Institute 1980. *SIPRI Yearbook: World Armaments and Disarmaments*. London: Taylor and Francis, Ltd.

Szymanski, A. 1979. *Is the Red Flag Flying? The Political Economy of the Soviet Union Today*. London; Zed Press.

Trut, L. N., Naumenko, E. V. & Belyaev, D. K. 1972. Change in pituitary-adrenal function of silver foxes under selection for domestication. *Genetica* 5: 35-43 (in Russian).

Turner, J. H. & Starnes, C. E. 1976. *Inequality: Privilege and Poverty in America*. Pacific Palisades: Goodyear Publishing Co.

Ustinov, D. F. 1981. Peace must be defended. *Reprints from the Soviet Press* XXXIII (No. 2): 10-22. New York: Compass Publications.

Vishnevsky, S. 1981. Washington and the SALT negotiations. *Reprints from the Soviet Press* XXXIII(Nos. 3-4): 56-61. New York: Compass Publications.

Wheeler, D. E. & Nijhout, H. F. 1981. Soldier determination in ants: New role for juvenile hormone. *Science* 213: 361-363.

Yefremov, A.Y. 1979. *Nuclear Disarmaments*. Moscow: Progress Publishers.

Zagladin, V. 1981. The socialist world and peace. *Reprints from the Soviet Press* XXXIII (Nos. 3-4): 27-37. New York: Compass Publications.

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